

THE MILLING WORLD

AND

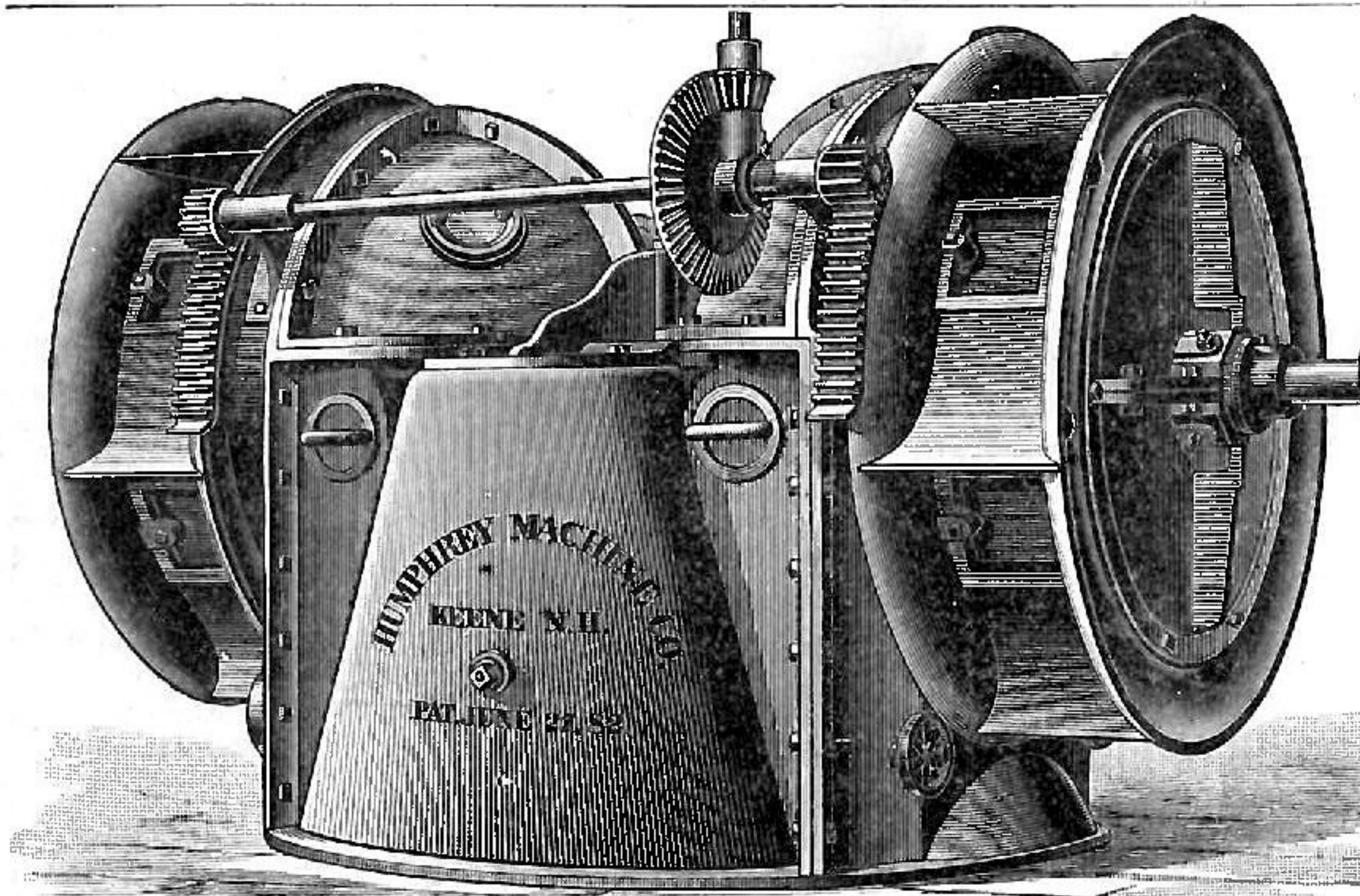
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 26.

BUFFALO, N. Y., AUGUST 25, 1890.

\$1.50 PER YEAR.



THE X-L-G-R OR IMPROVED CIRCUMSHOT Water Wheel

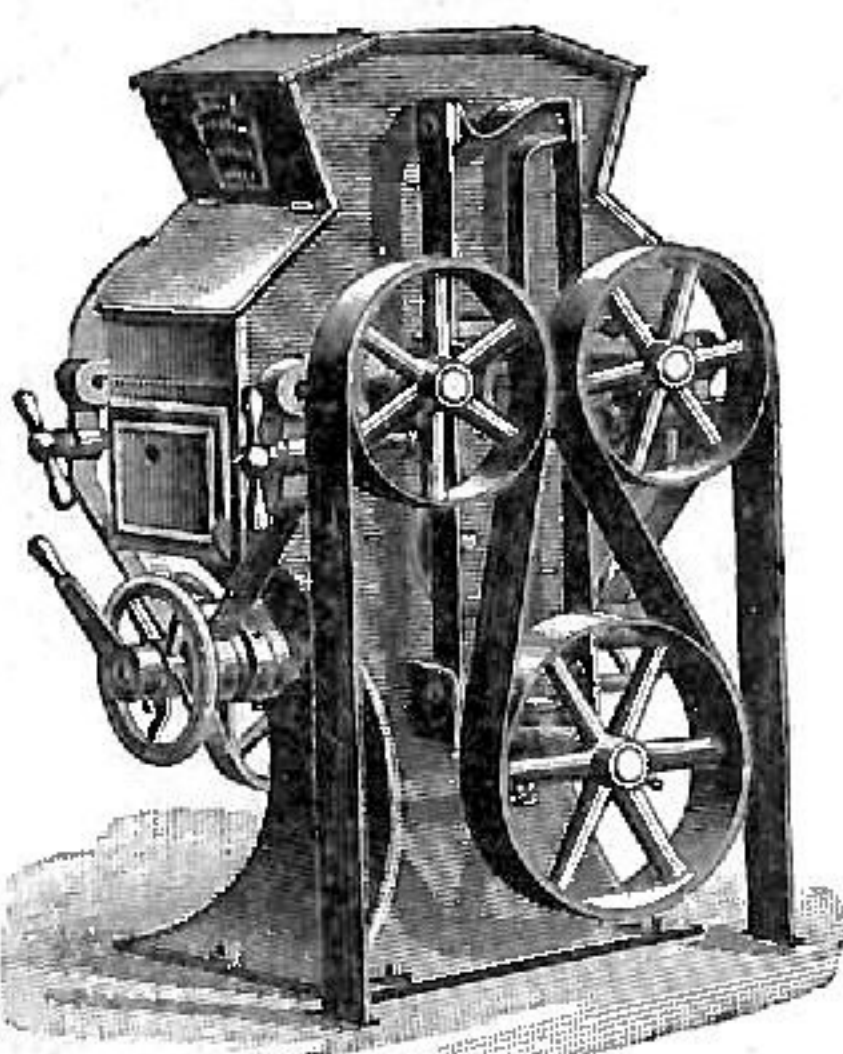
On Horizontal Shaft. Saves cost, annoyance and loss of power incident to use of gears. Affords more available power from water applied at full or part gate than any other. The cheapest, best and most desirable Water Wheel yet produced.

EFFICIENCY,
ECONOMY and
EXCELLENCE

FULLY GUARANTEED.

Humphrey Machine Co

KEENE, - - N. H.



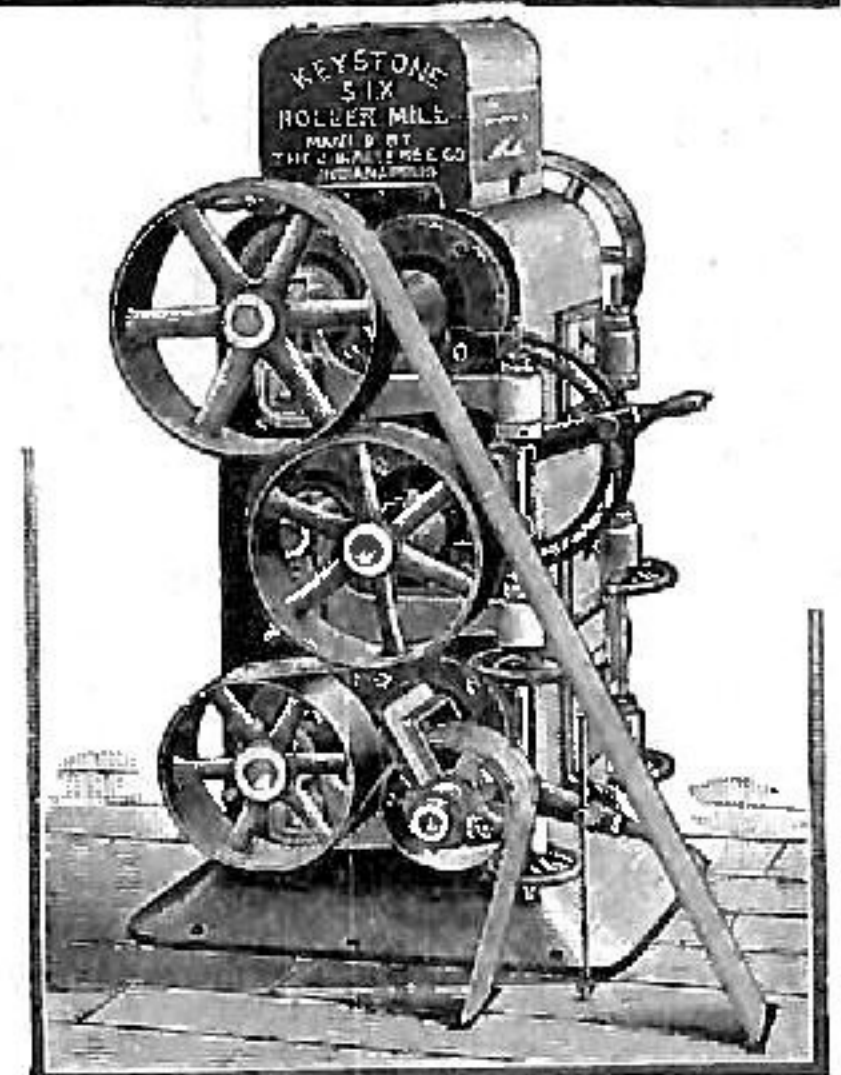
"Keystone" 4-Roller Wheat Mill.

Flour Mills. Corn Mills.

Send for Circular of our New 6-Roller Corn and Feed Mill.

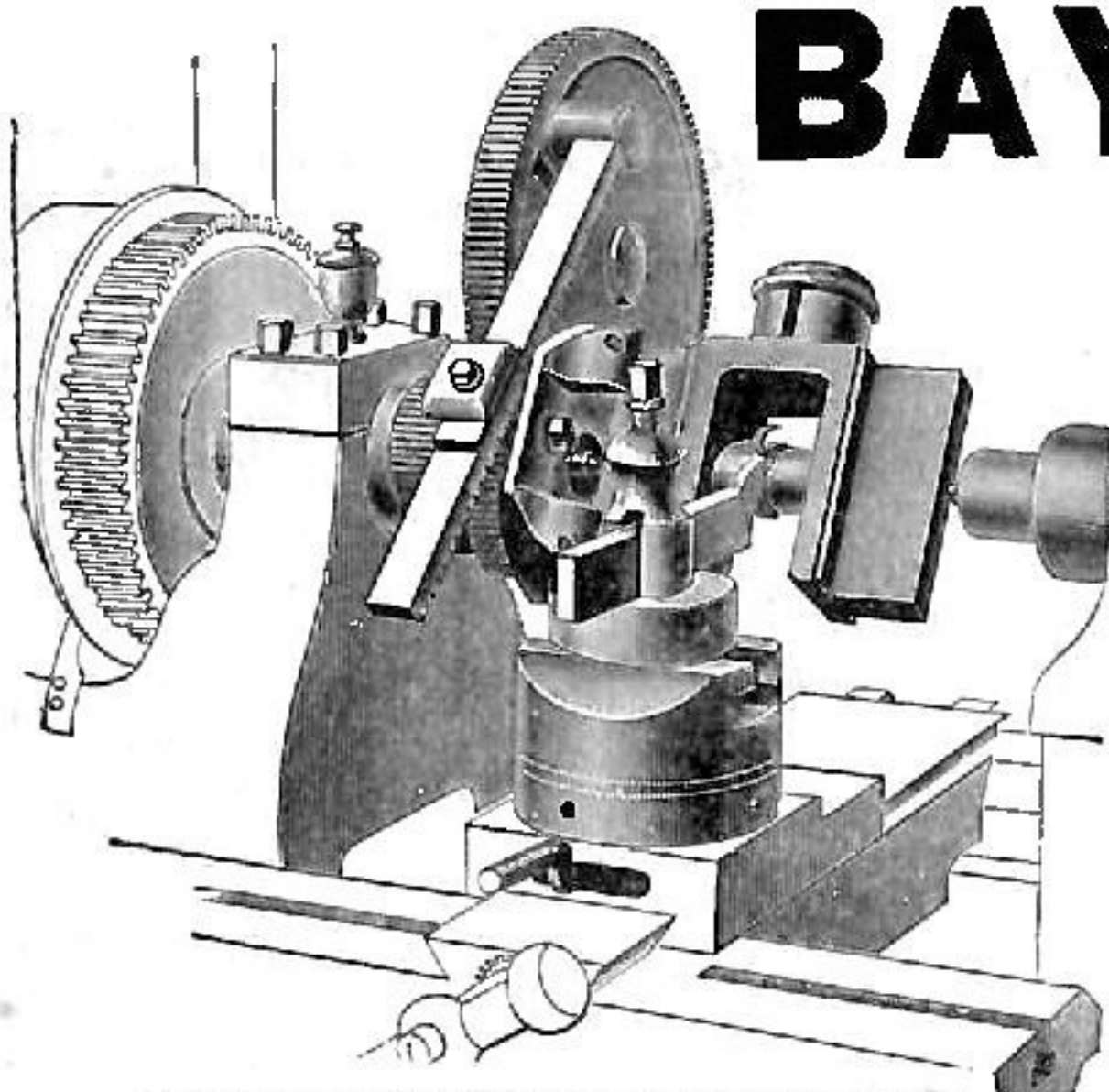
Entire Belt Drive.
Positive Differential.
Automatic Vibratory Feed.
Large Capacity.

Easily Operated.
Great Strength and Rigidity.
Simple Adjustments.
Perfect Construction.



"Keystone" 6-Roller Corn & Feed Mill.

ADDRESS THE J. B. ALLFREE CO., 76 to 86 Shelby Street, INDIANAPOLIS, IND.



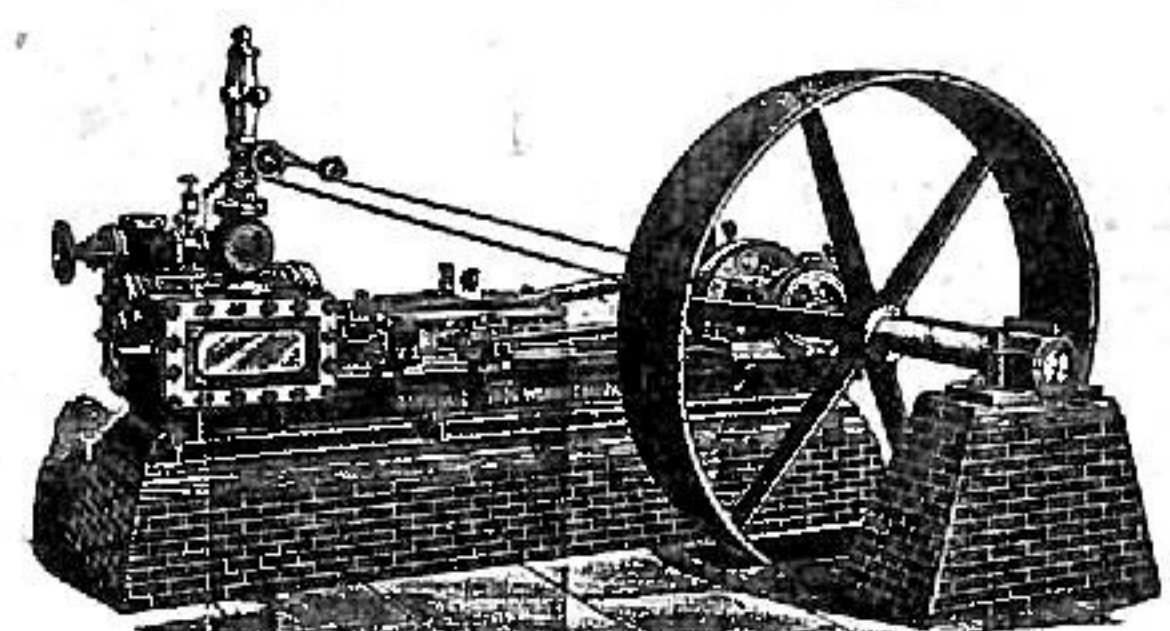
PATENT CROSS-HEAD MACHINE.

BAY STATE IRON WORKS

— MANUFACTURERS OF —

Engines, Boilers & Hoisting Machines

Also the Patent Cross-Head Machine and Acme Cube Pipe Tongs. We make either Center or Side Crank Engines, on same bed. Make engines from 5 to 250 Horse-Power. Have over 3,500 Engines and Boilers and over 1,000 Hoisting Machines in use, and all giving good satisfaction. Send for Catalogue and Prices.



HORIZONTAL ENGINE.

Noble & Hall, Box 462, Erie, Pa.

OFFICE OF CASE MANUFACTURING COMP'Y COLUMBUS, OHIO.

The Case Roller Mills. Over 14,000 Pairs in Use.

PLEASE READ OUR DESCRIPTION OF THEM, EVERY STATEMENT OF WHICH IS ABSOLUTELY TRUE.

PLEASE READ WHAT MILL OWNERS SAY ABOUT THEM.



The accompanying cut is a correct illustration of our latest improved Four Roller Mill. For fine work, great durability, simplicity, and general excellence, they stand "head and shoulders" above all others.

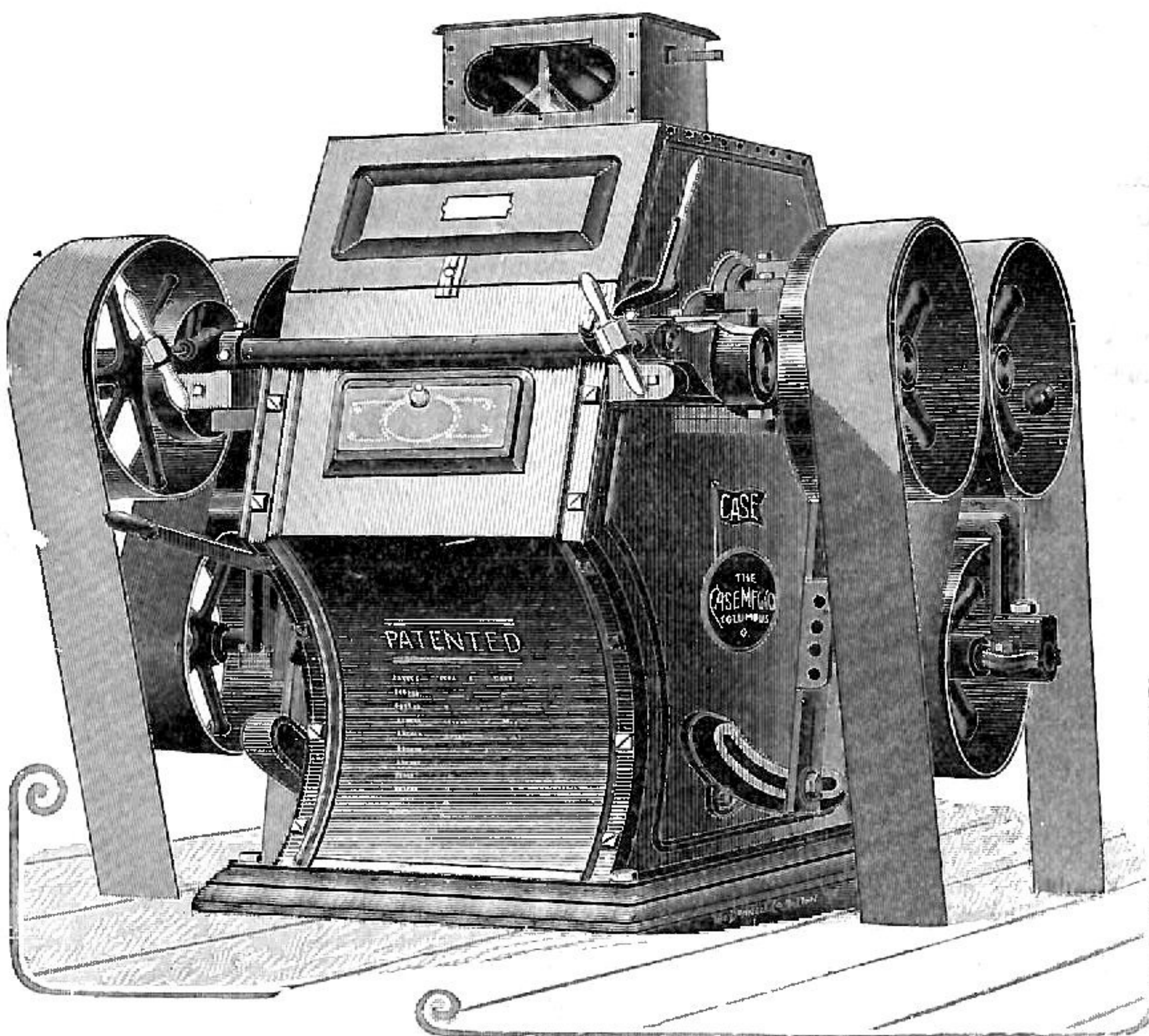
The frame is of iron with a heavy iron base.

The wood-work in top is of select cherry and black walnut, carefully shellacked and varnished.

The handles of adjusting screws and levers are finely nickel plated.

The joints are tight and dustless.

The adjustments easy, simple and perfect.



The roll bearings are wide and finely babbitted.

The belt drive is positive—no little short belts to slip.

The door for examining stock is a great convenience.

The arrangement for leveling rolls, simple and accurate.

The rolls can be thrown apart their entire length by one movement of the lever, and brought back again to original position, requiring no re-setting or experimenting.

Each machine is provided with our AUTOMATIC VIBRATING FEED, which requires no attention, and never fails to spread the feed the entire length of the rolls.



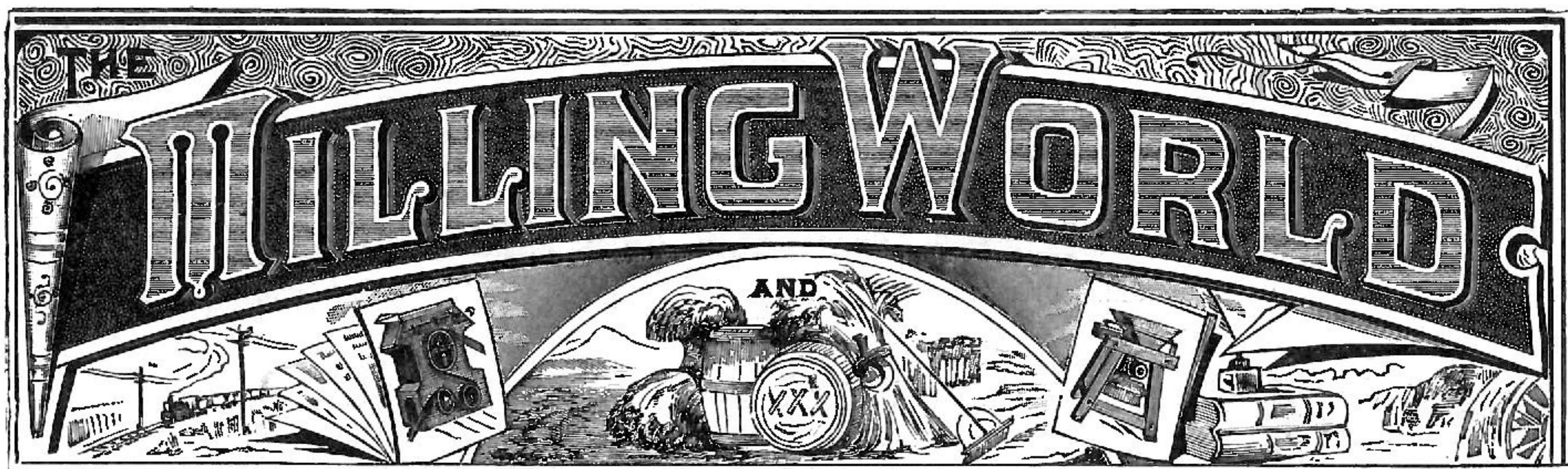
LISTEN! MICHIGAN MILLERS TALKING NOW.

CHARLOTTE, MICH., AUG. 5, 1890.

MESSRS. CASE MFG. CO., COLUMBUS, O.

Gentlemen: The mill is running fine. We are enjoying quite a fine little trade. Already have put over twenty tons of flour on the market here since we started the 7th of July, and it is giving elegant satisfaction. Every one who has seen our outfit pronounces it A 1, and the Case Automatic Feed can't be beat. In fact the Rolls are models of perfection. We are making a close finish and placing our goods alongside of the long system mills, carrying off the cake. We are highly pleased with the millwright work, and find your Messrs. McKenzie and Shough congenial gentlemen to do business with.

Very truly yours, PERKINS & MOON.



CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 26.

BUFFALO, N. Y., AUGUST 25, 1890.

\$1.50 PER YEAR.

A "SPRINKLED" oatmeal mill burned means another difficult explanation by the manufacturers and advocates of automatic sprinklers. One victory or success for the sprinklers is reported from Boston, Massachusetts, where a fire in a furniture factory was extinguished by automatic sprinklers. With the Kensington failure and the Boston success, honors are easy for the automatic sprinklers. Explanations that explain are still in order.

WHATEVER view the British millers may take of Mr. J. Murray Case's interesting paper on British and American milling conditions and prospects, it is certain that the large American millers will find little in those views to comfort them. Mr. Case points out, as THE MILLING WORLD has repeatedly pointed out, the remarkable growth of the small mills of the United States, and he implies, as THE MILLING WORLD has often plainly asserted, that these small mills are going to secure so strong and complete a control of the home markets that the large mills, when deprived of their export business by the natural growth of the home consumption, will be entirely unable to overwhelm them. It requires only a small amount of computation on a perfectly reliable basis to show that the wiping out of the great mills of Minneapolis, St. Louis and several other towns would not have any effect on the flour business at all, so far as supplying home needs is concerned. The consumers of the United States could do without the so-called "large" mills of the country far better than they could do without the so-called "small" mills.

BROTHER HALL thinks that the Millers' National Association is "hoodooed" by the Minneapolis "Yahoo," and, while he is booming the association enthusiastically and thoughtlessly, the association is clinging more and more closely to the "Yahoo," following its baneful lead more and more blindly, and showing more and more plainly its contempt for Brother Hall's excellent journal and all other real milling journals. It may be all right and proper for Brother Hall to advise the small miller to join the National, but what will the small miller think when he joins and finds himself rated as a "unit," as a flour-barrel or fraction thereof, or as only one-half, one-tenth, one-fiftieth or one-three-hundredths of a man in comparison with the "big" millers who vote as flour-barrels by the thousand? Will Brother Hall really be surprised if, at the next annual convention of the National, the "Yahoo" men in the organization use their "units" to reinstate that "pirate of the deepest dye" as the "official organ"? Will Secretary Barry really be surprised and grieved if he is thrown overboard and a "Yahoo" favorite is put in his place? Are not Brother Hall and Secretary Barry both perfectly well aware that both these events are highly probable, and that the attempt to bring them about, which failed in Minneapolis, may succeed at the next convention? Constant wire-pulling for a year, taffy in the holiday number of the "Yahoo," and all the other instrumentalities at the command of "Willie Edgar" will exert a strong influence on the "Yahoo" men in command, and it seems safe to predict that no purblind advocacy, no admonition, no zealous support, by any journal outside of the "Yahoo," will avail to prevent

the consummation of the "Yahoo" programme. The National has failed to attract the support of the milling journals by dropping the "organ," with the single exception of Brother Hall's journal, and the managers will probably be induced to show that they do not care for that support by re-appointing the "organ." That is the programme. Can Brother Hall afford to stultify himself by inviting such humiliation? Can he not see that in attacking the "Yahoo" and calling it a "hoodoo" he is simply directly attacking the close corporation clique that is mismanaging the National? The situation is peculiar, to say the least.

BRITISH writers on American grain and flour matters seem, without exception, to be unable to understand that the culture of wheat in the United States has not by any means reached its limit. One and all of them place the American wheat crop at 400,000,000 bushels for a minimum, and at 512,000,000 bushels for a maximum, and on these figures they compute that home demand will overtake supply in 1890, or soon after that year. They omit some essentials, to which we call their attention: 1. The wheat land in the United States is not yet all taken up. Vast areas of fertile soil yet lie untilled. Millions of acres will yet be added to the wheat area as needed. 2. The so-called "average" yield in the United States measures only the capacity of the soil under a system of culture that takes out all and restores nothing. In New York, Pennsylvania and other States, where the farmers are fertilizing, the yield of wheat has been pushed up to 30 and 50, and even more, bushels to the acre. It is only necessary to consider the system of fertilization extended to the newer States, as it will be inevitably in the near future, to see how the present output of the great western and northwestern wheat regions will be doubled and even trebled. It is not mere guess-work, it is not wild boasting, to predict that, under increased home demand, made absolutely certain by the inevitable increase of population, the wheat production of the United States can be, and will be, increased to at least 1,000,000,000 bushels, while all the other important cereals will be produced in proportion. Such a yield would feed 200,000,000 inhabitants, and such a yield can be made in the United States by precisely the same methods that in France have increased the wheat yields, on soil naturally far inferior to that of the United States, from 22 to 68 bushels to the acre. British and other European writers may feel sensations of comfort when they write that "the United States is quite likely to become an importer of wheat in 1900 or 1910," but they are wide of the mark. They do not understand the capacity of Americans. They see in the present exhausting system of culture the system of the future. They forget that the one distinguishing characteristic of Americans is self-adaptation to circumstances and requisitions. They who are predicting that the United States will in 1900 be importing wheat, and finding herself hurt by tariffs on imported wheat, will not live to see that state of affairs realized. The enormous growth of population in the United States may imply importation necessities in the future, but the time is so far in future that the present generation has but little concern in it.

The DAWSON ROLL WORKS CO.

FOUNDERS & MACHINISTS,

—MANUFACTURERS OF THE—

Dawson Roller Mills

—AND FURNISHERS OF—

CHILLED IRON ROLLS

WITH DAWSON PATENT CORRUGATION.

ALL STYLES OF FLOUR MILL ROLLS RE-GROUND AND
RE-CORRUGATED WITH ANY FORM OF CORRUGATION.

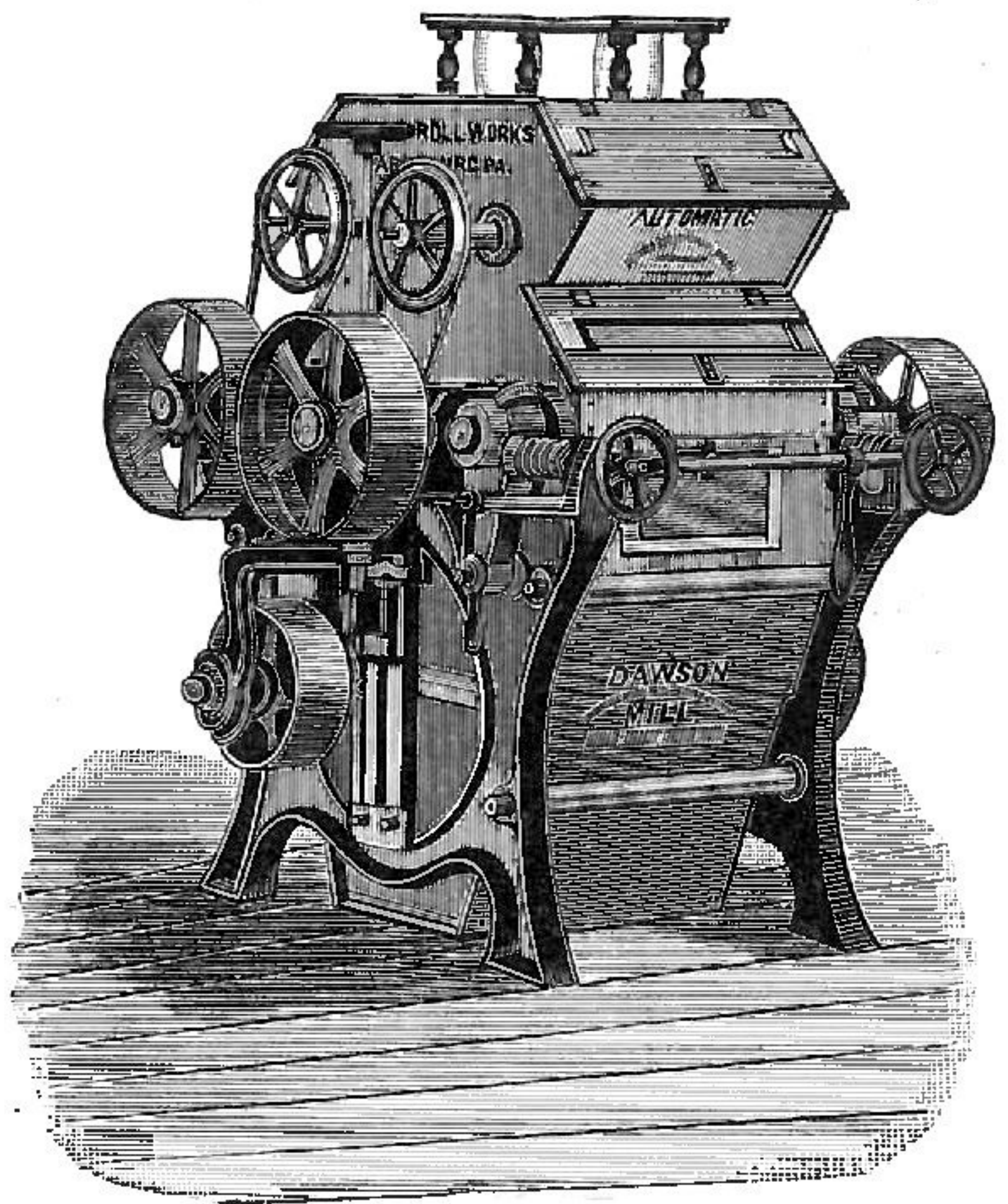
We have had large and extended experience in grinding and corrugating chilled rolls for milling, and have one of the largest and most improved plants in the country for this work, which enables us to meet the most exacting requirements of the trade promptly.

ORDERS AND CORRESPONDENCE SOLICITED.

DAWSON ROLL WORKS CO.

South and Short Streets,

HARRISBURG, PA.



BEST STEEL SAFETY MADE FOR
\$35

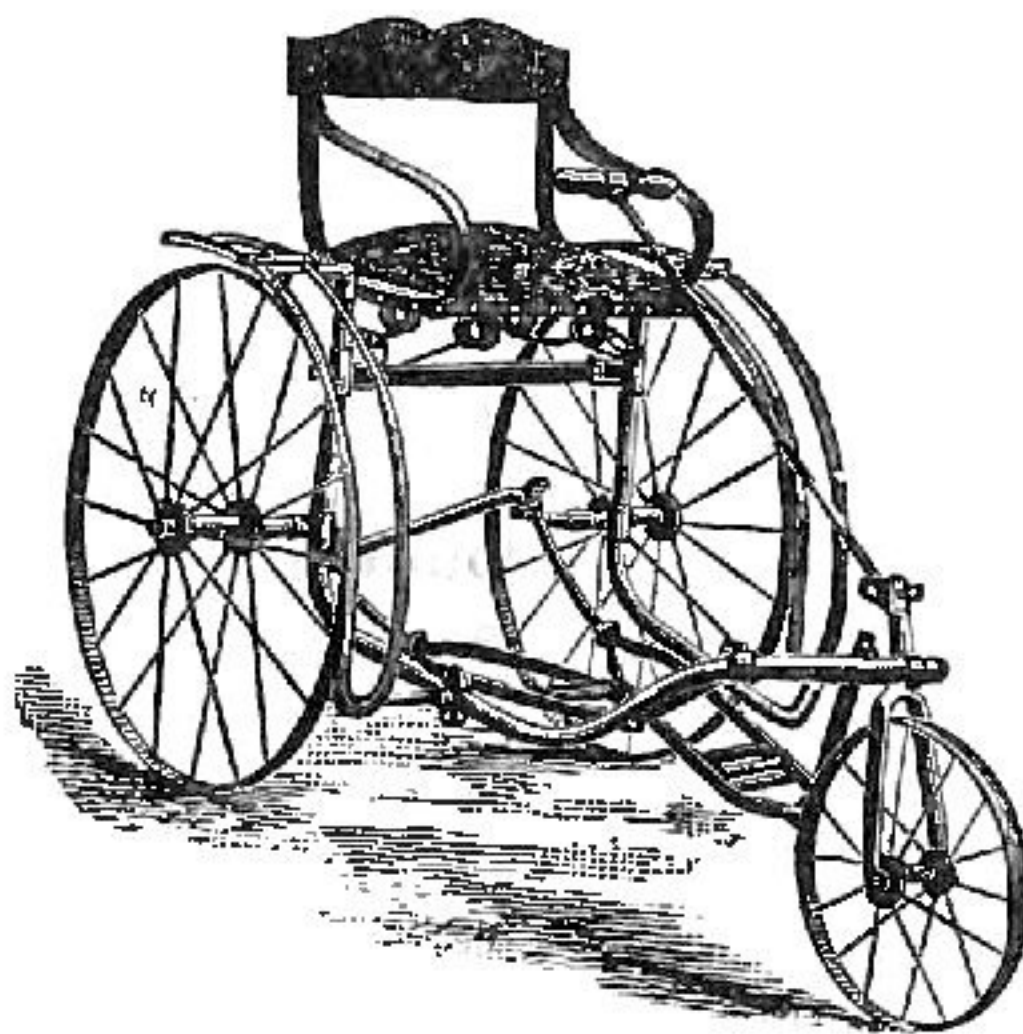
Easiest LADIES' Tricycle Known

Our Tricycles the Only Machine ever Recommended by Physicians for Ladies and Girls of a Delicate Constitution.

THE BUFFALO TRICYCLE CO.

Manufacturers of Ladies' and Girls' Tricycles, Ladies' and Boys' Safety Bicycles, Etc., Etc.

640 Linwood Ave., **BUFFALO, N. Y.**
SEND FOR CATALOGUE AND PRICES.



L. L. WHITLOCK,
Advertising Agent

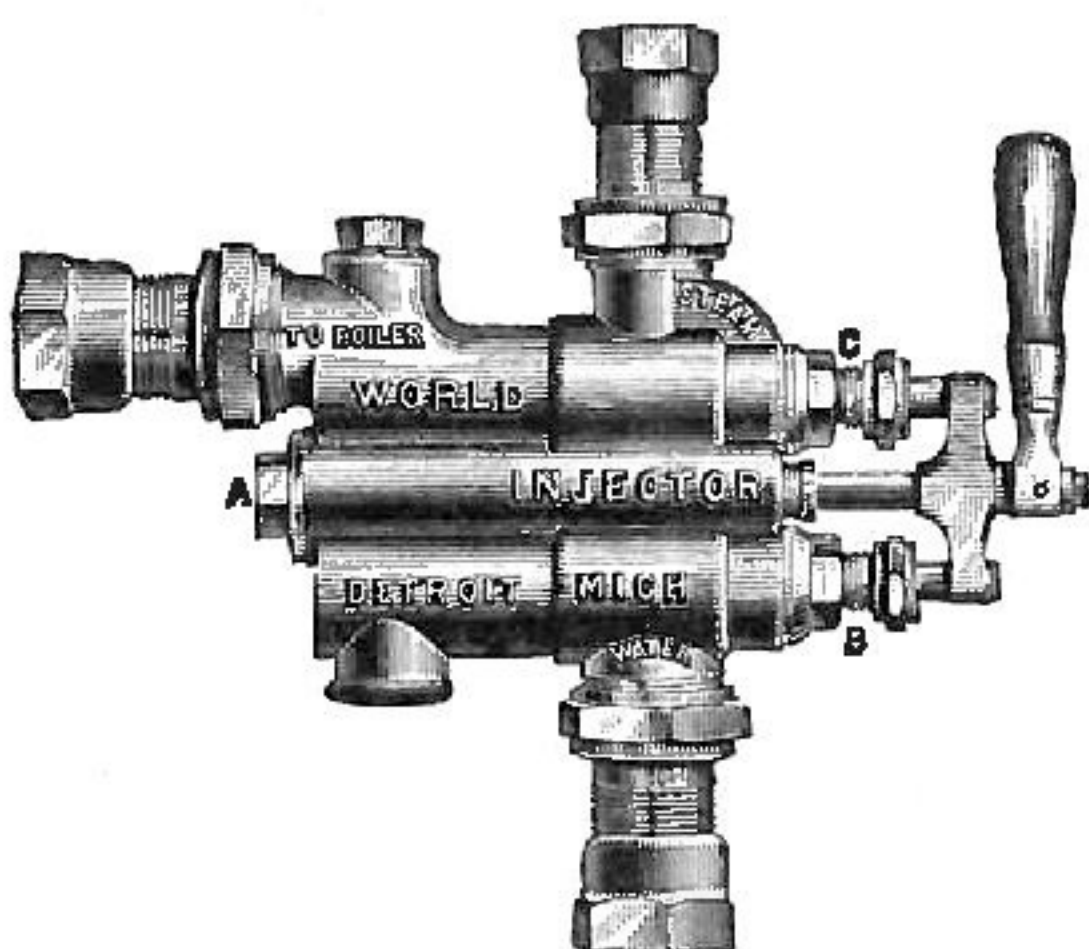
FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

P. O. DRAWER 5323. *Boston, Mass.*

As Agent for Advertisers instead of Papers, I obtain the Best Rates Possible for my Customers.

*** THE INK ***
WITH WHICH THIS PAPER IS PRINTED
IS MADE BY THE
QUEEN CITY PRINTING INK CO.
CINCINNATI, O.



THE Best is the Cheapest. Whenever you want a Boiler Feeder that will prove reliable under a circumstances, buy the **WORLD** Injector. It is absolutely the simplest and safest to operate and handle of any injector now on the market, **FOR** it is operated by a single lever only. In whatever territory you find these reliable World Injectors on **SALE** they are always guaranteed by the seller.

GOLD is good in whatever part of the world you may travel, and the "**WORLD**" Injector is worth every **DOLLAR** it will cost you. Catalogue containing Price List, valuable tables, and useful facts, figures and information **SENT** to engineers, machinists, and all interested in a perfect working injector, post-paid, upon application, **FREE**

AMERICAN INJECTOR COMPANY,

175 Larned Street West, **DETROIT, MICH.**



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Buffalo, N. Y.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.

Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

SITUATION WANTED.

Head miller with over 20 years experience want to make a change this spring. Address, A. MILLER, 67 Weaver Alley Buffalo, N. Y. 4t

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

WANTED, TO RENT.

A good Custom Mill, in a good grain section. Steam or water power. Address, MILLER, P. O. Box 170, Pocomoke City, Worcester County, Md. 252

FOR SALE

Water-power grist and feed mill for sale, at wharf and railroad, near New York. Established business, \$4,000. J. W. ATWATER, 150 Broadway, New York. 1720

FOR RENT.

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 6tf

SITE FOR A STEAM FLOURING MILL.

A first-class site for a Steam Roller Flouring Mill at Grant, Ashland P. O., Mich. Correspondence solicited by the GRANT IMPROVEMENT ASSOCIATION, L. E. Mills, Cor. Sec'y. 2326

WANTED.

A company being formed with large capital to operate flouring mill in vicinity of Washington and Baltimore, require a practical miller and first-class manager, who can command ten to twenty-five thousand dollars. For particulars address, HON. CHAS. S. BAKER, House of Representatives, Washington, D. C. 2326

FOR SALE.

A cheap and desirable mill property, consisting of a Grist Mill, Saw Mill, two dwelling houses and all other necessary buildings. The mill has a good custom trade, nicely situated in the borough of New Buffalo, Perry County, Pa. For full particulars call on or address JEFFERSON WADE, New Buffalo, Pa. 232

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.
One No. 2 Purifier, New. Best make. A bargain.
One 20-Inch Portable Mill.
One 18-Inch Double Gear Portable Mill.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

WINTER-WHEAT millers have a plenty of good plump wheat to grind, while recent reports indicate a short crop of badly shriveled spring-wheat. Should threshing in the spring-wheat regions confirm these reports, the spring-wheat millers will find life a burden during the coming year.

OUR esteemed Missouri cotemporary, the "Kansas City Commercial," calmly refers to "Kansas City with her 132,000,000 people" in an editorial paragraph. As the heated term is over, and we are once more in overcoats, to what shall we attribute these figures? We move for a recount in Kansas City. The Kansas City figures leave the other 64,000,000 out in the cold.

NOTWITHSTANDING our acknowledgment of our failure in the line of prophecy, we can not avoid a reference to the fact that THE MILLING WORLD several months ago, on information received from many points in the wheat regions, predicted that wheat in New York markets would go above the dollar notch, and that the price has been above that notch for some time. We took steps to discover what truth there was in the continued reports of damage to wheat in various localities, and we found those reports to be mainly true. The "bears" have boomed the wheat crop all the season, but the simple facts are now bulling it. At present it looks as though all cereal prices will go higher during the next few months. Southern Hemisphere countries are falling below their claims on their wheat crop of last winter, and both Asia and Europe are short. With a short crop in the United States and with silver in India and Russia on a higher basis of value, everything in the situation seems to mean higher prices. While the surplus of the United States this year is undoubtedly smaller than that of last year, it is probable that the value of the present surplus is nearly equal to that of last year. The increase in cereal prices may be understood when it is stated that No. 2 wheat in the New York market during the past week sold at \$1.09, against 85 cents a year ago, while corn sold at 55 cents, against 44 cents, and oats at 44 cents against 27 cents. A gain of 24 cents a bushel on wheat, 11 cents on corn and 17 cents on oats is a large one. That this large increase will be maintained through the ensuing year seems probable now. European importers are attempting to "bear," but the failure of the Southern Hemisphere promises and the acknowledged Indian failure are against him.

FOREIGN writers, who on paper have repeatedly destroyed the wheat-growing industry of the United States, should not go too far in the creation of bugaboos. We are willing to let them boom the Argentine Republic and some other countries as "lands of practically limitless wheat-growing capacity," but we draw the line at Australia. Our organ of faith, or credulity, withers and collapses when we are told that "the great continent of Australia, with an area quite equal to that of the United States, will be the final hope of the wheat-importing countries of Europe. Its vast areas of fertile soil will be made to yield untold millions of bushels of the finest of wheat." What is the fact, the probability, in the case of Australia? That continent has, to be sure, about 3,000,000 square miles of surface, but one solid slice of it is an elevated plain of sandstone, scrub trees and almost rainless desert, covering about 1,500,000 square miles. In some parts of this delightful tract the heat ranges from 20 degrees above zero to 150 degrees above during the year. There is no irrigation. The winds the year around are fierce and dry. The desert is lifeless. Another vast area is occupied by coast swamps, by sandy and clayey foot-hills and useless forests of valueless woods of the scrub order. Even in the parts which the hardy Britons have occupied the drouths and storms are fearfully destructive. One drouth of three or four years is a matter of recent history. Evidently those Europeans who dream of a possible great wheat supply from Australia are depending upon a fortification of snow or a tissue-paper sword. When the Argentine, Indian and other bugaboos fail, it is time to draw the Australian wheat bugaboo up on the stocks and leave it there.

THE WHEAT CROPS OF THE WORLD.

Following is a most valuable and interesting paper on "The Wheat Crops of the World and Wheat Values," by Editor James W. Rush, of Beerbohm's "Evening Corn Trade List" and of "The Millers' Gazette," London, England, read at the Edinburgh convention of the National Association of British and Irish Millers in August:

When it was first suggested to me that I might read a paper at this convention, it struck me at once that, although millers had often been told how to reduce wheat to flour, and with what machinery that operation could best be performed, no paper had ever been read treating of the commercial side of the trade as distinct from its technical aspect. At most Continental meetings of a similar character to this the commercial part of the miller's business receives as much attention as the technical; I therefore concluded that a paper on the subject which I have chosen might be acceptable to you, that it might interest you, and that it might possibly prove instructive to you. No subject can be found of greater interest to the miller or corn merchant, I consider, than the world's wheat production, and there is probably no subject about which less information has, until recently, been available than about this. We have now, it is true, an Agricultural Department, with a Cabinet Minister at its head, but it does no more for the miller and corn merchant of this kingdom than to issue, when too late to be of any real use, an estimate of our wheat production, and some scanty information, mostly second-hand, and always very late, regarding foreign markets and supplies. To be exact, it did once endeavor, towards the close of last year, to give an estimate of the "wheat crop of the world of 1888," but this was copied from a publication of the American Department of Agriculture, and simply bristled with errors; consequently it was worse than useless. It was misleading. Surely for such important industries as those of milling and agriculture, our Agricultural Department might do more than it does for us. With consuls and vice-consuls in every part of the world, the British Agricultural Department ought to be in a position to give the best information concerning the world's wheat production, and I would suggest that the National Association of British and Irish Millers might, with profit, agitate for more frequent and more complete information from foreign countries, as well as for a more reliable method of making returns of the quantities of home-grown produce sold in our own markets. As an instance of the utter ignorance until lately prevailing with regard to the universal production of wheat, I may mention that only last year, at the annual meeting of the French Millers' Association, a lecture was delivered by a certain French professor, treating of this subject, in which he managed to make the aggregate production of wheat in the world about 250,000,000 bushels larger than the reality.

I need not remind you of the direct connection between wheat production and wheat values; the former governs the latter at all times. Scarcity means high prices, now as of old, the depreciation of silver or the appreciation of gold notwithstanding, while abundance inevitably leads to low prices. The reduction of what may be called the normal level of wheat values from 50s. to 40s., and within the last decade from 40s. to 30s. per quarter, a point below which it seems to be impossible to expect prices to go, has been attributed to several causes, the one most popularly held, perhaps, being over-production. This view is only partly correct, and I think that the figures which I hereafter give will demonstrate this. As a matter of fact it will be shown that the population and consequently the breadstuffs requirements of the world have increased proportionately to quite as great an extent as has the production of wheat; indeed, of late years the increase in the latter has been less important than that in the former. Take the United States for instance: Ten years ago the population was estimated to be rather over 50,000,000, and the requirements of wheat for food and seed something under 300,000,000 bushels. In that year the amount of wheat produced in the United States was 498,250,000 bushels, thus giving a surplus of nearly 200,000,000 bushels, or 25,000,000 quarters, the actual quantity shipped in that season being 23,300,000 quarters. The present population of the United States is estimated to exceed 65,000,000, and the requirements of wheat at home are therefore increased to perhaps 375,000,000 bushels while the average production in the ten years since 1880 does not exceed 442,000,000 bushels, that in the present year being only about 430,000,000 bushels. In England it is notorious that our requirements are much larger, while the acreage under wheat is much smaller than in 1880. France, Germany, Belgium and Holland have stood practically still in the matter of wheat production, while in Spain and Italy the increase in the home requirements has largely exceeded that in home production of wheat; but in Russia, Roumania, Austria and Hungary there has been a decided increase in the production of wheat. The exact comparative figures, as near as can be found, will be given hereafter. Enough has, however, been shown to prove that over-production has not been the sole cause of the great decline in wheat values. In the opinion of the writer one of the principal causes of this decline is the enormous reduction in the cost of transport by rail and by sea from foreign countries, and the substitution of steamers for sailing vessels in the grain-carrying trade, thereby rendering foreign produce available so much easier and quicker. Twenty years ago it was no uncommon thing to see a fleet of 100 sailing vessels laden with wheat at English ports of call. These vessels would perhaps carry not more than an average of 3,000 quarters each, thus making an aggregate of 300,000 quarters, which took from two to three months to arrive in this country from the various ports of shipment. At the present time 30 steamers would bring the

same quantity in two or three weeks, so that much smaller reserve stocks are necessary than used to be the case.

Another cause is undoubtedly the depreciation in the value of silver, and the consequent decline in the exchange value of the Indian rupee. To briefly demonstrate this latter point, it need only be said that, while the par value of the rupee is 2s., it has in recent years declined to as low a point as 1s. 4d. Thus, supposing, with the rupee at the par value of 2s. the Indian grower were able to obtain in English money 20s. per quarter for his wheat; supposing, too, that a fall in the exchange to 1s. 6d. took place, this would mean that the Indian grower could accept 5s. per quarter less in English money for his product, and yet realize the same aggregate sum in rupees, which of course is his standard of value and his currency at home. A simple piece of arithmetic will show you therefore what a fall of 8d. in the exchange represents on Indian wheat values. In other words £10 sterling with the exchange at 2s. would be worth only 100 rupees; while with the exchange at 1s. 6d. £10 could be exchanged for over 130 rupees. In round figures every rise of $\frac{1}{4}$ d. in the Indian exchange (and it has risen $2\frac{1}{4}$ d. since the beginning of April) adds about 6d. to the first cost of Indian wheat; for it has been proved by experience that changes in the gold value of the rupee have but little effect upon what may be called the local value of the latter. So also with the Russian rouble; two years ago the exchange was down to the low point of 1s. 7d., which, of course, was greatly in favor of the Russian exporter; it is now about 2s. 4d. (the par value being about 3s.); this rise of 9d. in the exchange, or about 44 per cent., represents over 8s. per quarter on a first cost of, say, 20s. per quarter for Russian wheat. I do not wish to be understood to say that there is no limit to the effects of a fall or a rise in the Indian and Russian exchanges. For instance, supply and demand are of course the main rulers of wheat values, to which fluctuations in exchanges, variations in freights and other causes of a temporary and changeable nature are entirely subsidiary. To the ordinary observer it seems logical to consider that when values are so near to the cost of production as they have been for some years past, a decided rise in the exchange value of the rupee and the rouble such as we have lately witnessed must be a more powerful element in raising the level of wheat values than it would be if the price were, say, 50s. per quarter. To return to the subject of wheat production in the world. I do not pretend to have access to sources of information closed to others, but I do consider that in most previous attempts to estimate the world's wheat supply, which have come under my notice, the channels of information open to all have not been utilized, and I wish to present to you, with all necessary modesty, what I believe to be the most reliable account possible of the wheat yield of the various countries. I shall first give the known yield, from official and other sources, of the crops of 1887, 1888 and 1889, and I shall then give an estimate, according to the latest and best information, of the crops in the present year, 1890. The crops for 1889, 1888 and 1887 are given in the following table, the countries being alphabetically arranged for the sake of easier reference:

	1889. Quarters.	1888. Quarters.	1887. Quarters.
Austria.....	4,550,000	6,198,000	6,360,000
Hungary.....	11,482,000	17,208,000	17,840,000
Belgium.....	2,250,000	2,000,000	2,500,000
Bulgaria.....	4,400,000	4,500,000	4,600,000
Denmark.....	625,000	480,000	750,000
France.....	39,250,000	34,418,000	40,300,000
Germany.....	10,625,000	11,508,000	13,000,000
Greece.....	1,375,000	1,250,000	1,250,000
Holland.....	750,000	600,000	700,000
Italy.....	12,580,000	12,630,000	14,478,000
Norway.....	50,000	50,000	40,000
Portugal.....	1,000,000	850,000	1,000,000
Roumania.....	5,437,000	7,060,000	7,156,000
Russia (including Poland)	23,750,000	39,000,000	36,875,000
Servia.....	750,000	1,075,000	800,000
Spain.....	9,200,000	8,220,000	9,100,000
Sweden.....	463,000	462,000	440,000
Switzerland.....	300,000	250,000	250,000
Turkey (Europe).....	4,500,000	5,000,000	4,750,000
United Kingdom.....	9,485,000	9,311,000	9,528,000
Total for Europe.....	142,822,000	162,065,000	171,717,000
Algeria.....	1,970,000	2,745,000	2,000,000
Argentine Republic.....	3,000,000	1,500,000	2,300,000
Australasia.....	5,275,000	3,275,000	4,812,000
Asia Minor.....	4,500,000	4,500,000	4,250,000
Canada.....	3,750,000	4,000,000	4,500,000
Cape Colony.....	550,000	500,000	600,000
Chili.....	1,875,000	1,500,000	2,100,000
Egypt.....	875,000	1,000,000	1,250,000
India.....	29,643,000	32,546,000	27,750,000
Persia.....	2,750,000	2,800,000	2,000,000
Syria.....	1,500,000	1,750,000	1,500,000
U. S. America.....	61,320,000	51,983,000	57,041,000
Total out of Europe.....	116,908,000	108,099,000	110,103,000
Grand Total.....	259,730,000	270,164,000	281,820,000
For Australasia and the Argentine Republic the figures relate to the crops 1889-90, 1888-89, and 1887-88.			

The first thing that strikes one on looking at this statement is the insignificance of the United Kingdom as a wheat grower; in fact, only 6 per cent. of the total European wheat production is credited to this country. English wheat might, indeed, entirely disappear this year and yet not affect the total European wheat production compared with last year, if Russia had something like the crop she reaped in 1887; but we also see that the big wheat-growing countries such as America and Russia are liable to very sudden changes in their wheat production. A falling off of 10,000,000 quarters in the American wheat crop, in which I include California, is by no means rare, while Russia, as we see, actually produced over 15,000,000 quarters less last year than she did in 1888. Thus, over-production may happen in one year to exist in an acute form, as was the case in 1887, to be followed, as in 1888, by crops only just sufficient for or even much below, requirements, as happened in 1889. The season of 1889, in fact, was one of very small production and quite insufficient to feed the existing population without drawing from the reserves of previous years. Estimates of the world's wheat production are, of course, of little real use until we know what the world requires, its actual consumption, in fact. We know approximately what the leading countries such as America, France, England, Germany and Italy consume, and we can make a fair guess at Russia's and India's home wants, but the requirements of the remaining countries are naturally more difficult to estimate. It does not appear to me necessary in this short paper to give a detailed statement of the requirements of each country, but I will submit the following totals for European and non-European countries, as being probably as nearly correct as possible:

TABLE II.

	1889-90.	1888-89.	1887-88.
European Countries: Quarters.			
Production.....	142,822,000	162,065,000	171,717,000
Consumption.....	174,000,000	173,000,000	172,000,000
Balance.....	31,178,000	10,935,000	283,000
Non-European Countries:			
Production.....	116,908,000	108,090,000	190,103,000
*Consumption.....	96,500,000	95,250,000	94,250,000
Balance.....	20,408,000	12,849,000	15,853,000
Totals;			
Production.....	259,730,000	270,164,000	281,820,000
Consumption.....	270,500,000	268,250,000	266,250,000
Balance.....	10,770,000	1,914,000	15,570,000

*In these figures are included the consumption of the West Indies, China, Brazil, etc., which do not figure as wheat growers. The few unimportant countries omitted from the above list would not vary the result as far as production and consumption are concerned.

These figures show some curious results and offer food for much reflection. They show that the production last year was actually over 10,000,000 quarters less than the actual requirement; but then the surplus from the two previous years is shown to have been over 17,000,000 quarters. The world is able to carry and evidently does sometimes carry enormous reserve stocks, the unknown extent of which has in previous years often rendered it difficult to forecast supplies. One thing is quite clear, that the last crop, that of 1889, was an exceedingly short one, and the only reason why prices have not been affected to a much greater extent is evidently the fact that the reserves from the previous crops must have been very large; this is especially true of Russia, from which country it is estimated that the exports in the season just closing have comprised no less than 6,000,000 quarters of old wheat. Those American syndicates which have in past years acted upon the hypothesis that Europe can not do without American breadstuffs, will note with more than ordinary interest the fact, shown in Table I, that in 1887 Europe actually produced enough wheat for her own requirements. The abundance of Russian wheat in the last three years has been called the salvation of the British and Irish miller, and not without reason, for it has greatly helped to frustrate the attempts of American speculators to inflate prices unnecessarily. It must be acknowledged that, as I have already pointed out, the extreme depreciation in the value of the Russian paper rouble two years ago was a great help in this direction. In this connection it may be interesting to give here the Russian wheat production, excluding Poland, since 1880, which will show that in the years 1887 and 1888 the crops in that country were the largest on record. To this I have added the total yearly exports since 1884; reliable figures for earlier years are not to be obtained:

TABLE III.

RUSSIAN WHEAT PRODUCTION AND EXPORTS SINCE 1880.

	Production. Quarters.	Exports. Quarters.
1880.....	20,600,000	Figures not Obtain- able. 8,640,000
1881.....	33,100,000	
1882.....	27,000,000	
1883.....	26,400,000	
1884.....	32,100,000	
5 years average..	27,840,000	
1885.....	21,500,000	11,704,000
1886.....	19,500,000	6,650,000
1887.....	33,624,000	10,086,000
1888.....	35,747,000	14,556,000
1889.....	22,500,000	12,293,000
5 years average..	26,574,000	11,047,000

This shows that even in Russia the average production of wheat in the past 10 years has not increased, but compared with the 1870 to 1880 decade there is a decided increase. Russia, being mainly a rye-bread-eating country, can spare for export a much larger proportion of its wheat production than, for instance, the United States, which is essentially a wheat-consuming country. The yearly production and exports of wheat and flour from the United States will be useful in this place for the purpose of comparison:

TABLE IV.

AMERICAN WHEAT PRODUCTION AND EXPORTS SINCE 1880.

	Production. Quarters.	Exports. Wheat & Flour* Barrels.	Flour alone. Barrels.
1880.....	62,250,000	23,300,000	7,945,686
1881.....	47,500,000	15,239,000	5,915,686
1882.....	63,023,000	18,476,000	9,205,664
1883.....	52,635,000	13,941,000	9,152,260
1884.....	64,095,000	16,571,000	10,648,145
5 years average.	57,900,000	17,505,000	
1885.....	44,640,000	11,820,000	8,179,241
1886.....	59,650,000	19,225,000	11,328,872
1887.....	57,041,000	14,953,000	11,963,000
1888.....	51,983,000	10,645,000	9,026,886
1889.....	61,320,000	13,450,000	11,880,000
5 years average.	54,926,000	13,978,000	
1890.....	54,000,000		

*The exports in each case are for the season ending June 30 following.

This statement proves what I said earlier in this paper, that the United States has been declining in the matter of wheat production and exports, while the home wants have been increasing rapidly by reason of the large yearly increment in the population. To the British miller anything having reference to America and its flour trade must be of interest, and I have therefore felt that no excuse is required for expatiating a little on this topic. First of all, it seems to me that America is within measurable distance of becoming actually an importer instead of an exporter of wheat. Every year her home wants will be increasing at the rate of about 1,000,000 quarters per annum, so that, if she does not extend her wheat cultivation, an average crop 10 years hence, in 1900, will only just cover her own requirements, and the British and Irish miller will be free from that terrible bugbear which has oppressed him so long, American competition. I do not care to be so sanguine as to suppose that the acreage under wheat in the United States, which in 1880 was nearly 38,000,000 acres, and was last year just about the same, will not be increased in the next decade, but I am sure that with the price level below 40 shillings in England, there is, and will be, no encouragement for American farmers to extend wheat-growing. I now propose to show how India, Roumania, Australia and the Argentine Republic have progressed in the matter of wheat exporting since 1880:

TABLE V.

	India, qrs.*	Rou'nia.	Au'lia, qrs.†	Arg. Rep., qrs.
1880.....	1,403,000	1,000,000	1,870,000	22,000
1881.....	4,634,000	....	1,281,000	16,000
1882.....	3,300,000	....	1,215,000	14,000
1883.....	4,890,000	....	818,000	337,000
1884.....	3,694,000	....	2,655,000	513,000
1885.....	4,914,000	....	2,087,000	405,000
1886.....	5,195,000	1,302,250	697,000	206,000
1887.....	3,159,000	2,386,000	1,212,000	1,124,000
1888.....	4,110,000	4,018,000	2,157,000	861,000
1889.....	3,221,000	4,607,619	750,000	125,000

* For years ending March 31 following. † So. Australia and Victoria.

You will perceive from these figures that India is by no means fulfilling the expectations entertained 10 years ago, that she would oust America from her position as the chief granary of the world. To many people, indeed, the comparative smallness of India's exports will be a matter of surprise. Australasia is very uncertain in her crops and still occupies a very low position in the scale, while the Argentine Republic promises to be equally uncertain for some time to come. Roumania, like Russia, has made considerable progress, but I regret not to have been able to obtain the exact figures for 1881 to 1885. Reverting to table I, I now propose to show, side by side, what most of the principal countries produced in 1889 and in 1880:

TABLE VI.

	Crop 1889, qrs.	Crop 1880, qrs.
Austria.....	4,550,000	4,930,000
Hungary.....	11,482,000	9,742,000
France.....	39,250,000	34,663,000
Germany.....	10,625,000	10,750,000
Italy.....	12,580,000	14,000,000
Portugal.....	1,000,000	1,000,000
Roumania.....	5,437,000	4,000,000
Russia (exclude Poland).....	22,500,000	20,600,000
Spain.....	9,200,000	9,000,000
United Kingdom.....	9,485,000	8,000,000
Argentine Republic.....	3,000,000	1,000,000
Australasia.....	5,275,000	4,000,000
Chili.....	1,875,000	2,000,000
Egypt.....	875,000	3,000,000
India.....	29,643,000	24,000,000
U. S. America.....	61,320,000	62,250,000
Total.....	228,097,000	212,985,000

Since 1880, therefore, the aggregate production in these countries has increased by 15,000,000 quarters, while in the same period the world's requirements have increased by about 20,000,000 quarters. Evidently, therefore, over-production has not been the principal cause of the great decline in the value of wheat, which has been brought about rather by a combination of causes before mentioned. Leaving the historical or retrospective part of the question, I now come to the probable outturn of the crops in the present year, which I have no doubt you will find of more immediate interest. I have been in communication with various firms abroad, and with some of the British Consuls, and from their remarks, as well as from careful observation of the various crop reports by Beerbohm's *Evening Corn Trade List*, with which I have the honor to be connected, I make the accompanying estimate of the present year's crop:

TABLE VII.

ESTIMATED YIELD IN 1890

	Quarters.
Austria.....About average.....	5,500,000
Hungary.....Above average.....	17,000,000
Belgium.....Fair Average.....	2,500,000
Burgaria.....Below Average.....	4,000,000
Denmark.....Average.....	750,000
France.....Below average.....	35,000,000
Germany.....Good average.....	12,000,000
Greece.....Fair average.....	1,500,000
Holland.....Fair average.....	750,000
Italy.....Good average.....	13,650,000
Norway and Sweden.....Fair average.....	500,000
Portugal.....Average.....	1,000,000
Roumania.....Good average.....	7,000,000
Russia (Incl. Poland).....Good average.....	30,000,000
Servia.....Very good.....	1,250,000
Spain.....Good average.....	10,000,000
Switzerland.....Average.....	300,000
Turkey in Europe.....Below average.....	4,000,000
United Kingdom.....Below average.....	9,000,000
Total for Europe.....	155,700,000
Estimated Consumption.....	175,000,000
Balance.....	19,300,000

I confess that it is somewhat early to hazard estimates for some of the countries; for instance, the weather may yet spoil a considerable portion of the English and French harvests; but I believe that, whatever modifications become necessary, they will not materially enlarge the total, which is after all the main point. In the case of Austria-Hungary the figures are based on the official reports. For France they are the figures adopted by the French agricultural press, and for Germany they are the result of the most reliable commercial advices. Concerning the Italian crop, I am indebted for useful reports from the British Consul at Leghorn, Henry O'Neill, as well as to the latest report of the Italian Minister of Agriculture. From Roumania the British Consul at Galatz, Percy Sanderson, has been good enough to send some reliable information, while the British Consul at Coruna, E. H. Walker, has kindly supplied me with some valuable reports concerning the Spanish crop. I have estimated the Russian crop a good average, 30,000,000 quarters, 6,250,000 quarters more than last year; although Messrs. Raffalovich, of Odessa, report that the spring-wheat crop, which is by far the most important, has suffered from the great heat; while the Russian Minister of Agriculture also takes a less rosy view of the crop than some time ago, whether for ulterior motives in connection with the Empire's finances, I am not of course in a position to know. T. E. Heenan, the American Consul at Odessa, also expresses the opinion, in a letter dated July 18, that the crop will not be a large one, although he adds that well-informed persons at Odessa do not agree with him; but in the absence of anything like reliable statistics, the American Consul considers it very difficult to form a correct estimate. The English crop I have put down at only 5 per cent. below the average of the previous three years, which you will, I fancy, agree, is not a pessimistic estimate.

The result is that Europe has produced nearly 20,000,000 quarters less than she requires for consumption. The ability to supply this quantity by non-European countries is rendered more difficult, because we know that the American crop is a short one, about 54,000,000 quarters, of which home wants will claim at least 46,500,000 quarters, thus leaving 7,500,000 quarters for export, to which may be added about 4,000,000 quarters from the reserves, making 11,500,000 quarters in all; of which, however, the West Indies, China, Brazils, &c. will require about 2,500,000 quarters, thus leaving 9,000,000 quarters net for Europe; 11,000,000 quarters is too much to expect India, Persia, Australasia, the Argentine Republic, Chili, Egypt, Algeria and Canada to supply; although this will to some extent depend upon the result of the next harvest in the four first-named countries. The present year's harvest in India, too, has proved to be very short, leaving only about 3,000,000 quarters for export. All this, I think, indicates that the season of 1890-91 will witness a further reduction in the world's reserves, which, as you have seen in Table II, have already been very largely reduced during the past season, but which may still be more important than is perhaps thought. I do not presume to forecast from this the course of prices next season; we all know that, owing to the rapid means of communication before mentioned, supplies are apt to come forward in lumps, so to speak, a rise of 5s. per quarter at any given time having a wonderful effect in that direction; but I think I have shown

enough to convince you that 1890-91 will not, as a whole, be a year of abundance. I will now briefly summarize what I have endeavored to set forth:

1. That the great decline in wheat values in the past 15 years has been due to lessened cost of transportation from the exporting countries, to over-production in the first part of the period in question, and to the very favorable state of the Indian and Russian exchanges.
2. That population has for some time been steadily gaining on wheat production, and that the theory of over-production no longer holds good.
3. That America is approaching the time when she must considerably increase her wheat acreage, or fall out of the ranks of wheat-exporting countries.
4. That the competition of American flour in England next season must perforce be much less acute than in the past season, because of the deficient crop there.
5. That the material recovery in the Indian and Russian exchanges may be expected to assist in raising the platform of wheat values.
6. That Russia and Roumania have taken the first position in the scale of wheat-exporters; which is perhaps matter for a certain amount of congratulation among us, since those countries are not in the habit of forming "rings" and syndicates for fictitiously raising prices. And lastly, that the ensuing season is not going to be one of undue abundance, nor of any serious scarcity, as far as wheat is concerned.

AUTOMATICALLY SPRINKLED RISKS.

Speaking of sprinkled risks, the New York "Daily Commercial Bulletin" of August 18 says: "The recent heavy losses caused by the burning of several large manufacturing establishments thoroughly equipped with approved automatic sprinklers may well make the boldest underwriter ponder over the heavy allowances made by fire-insurance companies for automatic sprinkler systems. That the sprinklers reduce the hazard is admitted by nearly all, but to what degree do they reduce it? Then, too, why do sprinkled risks burn more frequently now than formerly? Regarding the latter, there are several reasons, and one important one is that the number of risks equipped with automatic sprinklers is rapidly increasing. Another is that the sprinkler equipments put in during 1885, 1886, 1887 and 1888 were not only not as well designed as those now being erected, but in addition there are many of them not being kept in proper condition by the assured. The sprinkler companies complain, and not unreasonably, that the reputation of their systems is ever in jeopardy, owing to the fact that so many property-owners will not even take any trouble in the matter of ordinary precautions, such as keeping the tanks full of water, but will also absolutely and unqualifiedly refuse to spend any money in replacing broken, worn-out or otherwise inoperative parts of the equipment. The proprietor of a sprinkled saw-mill, recently burned, wrote to an inquirer that, while he did not think the sprinkler system a protection to a saw-mill risk, it was a good investment in that it reduced insurance rates. This is particularly interesting in view of the fact that the sprinkler system was permitted to become out of order, and the assured declined to spend any money to put it in proper condition. Up to within a very few years property-owners sprinkled their premises to prevent fire, and, therefore, the moral hazard was nearly absent in sprinkled risks. Now that such heavy reductions are made in rates on sprinkled risks, Messrs. Burnupheimer and Arsonberg put in the sprinklers or let any one do the job for them on contract, saving the cost out of premiums. The moral hazard is not removed by the sprinklers, and it is easy to shut down a valve or let the tank run dry. Brokers who made contracts for sprinkler equipments and insurance for a term of years are expressing uneasiness lately. They fear that the recent failures and those yet to come may stiffen the market for insurance, and therefore make them stand in the gap. They also fear that ere their long-term contracts are up a tariff might possibly go into effect."

MILLING PATENTS.

Among the patents granted August 12, 1890, are the following:

Charles F. Walters and Peter Shellenback, Richmond, Ind., No. 434,028, a roller-mill, comprising the combination, with the casing or frame rollers, one movable with relation to the other, of the tension-bar, one end of which engages the movable roller-bearing, a spring-support for the tension-bar engaging its opposite end, an adjustable fulcrum for the said bar intermediate the spring and roller bearing, and

an eccentric controlling said fulcrum, whereby the rolls may be quickly spread.

Stacy B. Hart, Peoria, Ill., No. 434,082, an elevator for grain-separators.

Charles Closz, St. Ansgar, Iowa, Nos. 434,246, 434,247 and 434,248, grain-separating screen, and No. 434,249, a grain-separator.

Among the patents granted August 19, 1890, are the following:

Lycurgus B. Riley, Grafton, Ill., No. 434,467, a grain-measure, comprising a horizontally-sliding box having a funnel-shaped measuring-vessel secured in the bottom thereof, a slotted supporting-table, a supporting-shelf, a scraper pivotally secured to an immovable part of the frame, a partition secured also to an immovable part of the frame, a sliding door and cross-bars, and a handle secured to the measuring-vessel, all of said parts constructed, combined, and adapted to each other for united operation.

Salem T. Lamb, New Albany, Ind., No. 434,514, a sack-holder.

Samuel T. Lockwood, Chicago, Ill., No. 434,669, a bran-packing machine.

Chas. H. Cooley and Francis H. Richards, Hartford, Conn., No. 434,702, a grain-weigher.

Thos. W. Graham, Dubuque, Ia., No. 435,707, a roller grinding-mill, comprising the combination, with a frame and a fixed roll, of an adjustable roll, a frame extending laterally beyond the periphery of the adjusting-roll supporting the same, spherical bearings on the frame, means for adjusting the frame vertically and horizontally, and tension devices secured to the casing below the bearing and engaging with the lower end of the adjustable frame.

Francis H. Richards, Hartford, Conn., No. 434,723, a regulator for grain-weighers.

Frederick Strobel, Marion, O., No. 434,735, a grain-separator.

COTEMPORARY COMMENT.

A trade journal estimates that 2 per cent. of the entire food product of this country is adulterated. As the total value of the food consumed is estimated at \$4,500,000,000 there must be upon this basis of calculation \$90,000,000 worth of fraudulent food products foisted upon consumers every year.—*Chicago "Industrial World."*

And then, you know, there is going to be a rice famine in India and Japan.—*Chicago "Daily Business."*

The South is certainly showing more substantial growth to-day than ever before in its history.—*"Chattanooga Tradesman."*

ACCORDING to a Minneapolis dispatch of August 16, Colonel G. D. Rogers, editor of "The Market Record," having made a survey of the field, estimates the wheat crop of Minnesota and the Dakotas. He has gone over all three States and made county averages. He says: "Reports of threshing in southern Minnesota and in central parts are general, and

from such measurement it is found that the crop is yielding from 15 to 20 bushels an acre in portions that went 2 or 4 bushels more last year. That is particularly true of the timber sections, where the yield was heavy in 1889. Several of the Mississippi River counties, as well as many others in the southern tiers, put into wheat 50 per cent. more land than they did last year. The reports indicate 14 bushels an acre, and if the State were averaged at that the result would be about 46,000,000 bushels for Minnesota. From general information it does not appear that the average would go more than about 13 bushels to the acre, or, in round numbers, 43,000,000 bushels of wheat for the State, against 48,000,000 bushels last year. The yield in South Dakota, so far as known from threshing, is satisfactory in the southern part of the State, and in the north half there is the eastern tier of counties that produced a fair crop, and some along in other places, while the northern central portions do not exceed 50 per cent. of a fair yield. The yield does not probably exceed 10½ bushels. In North Dakota there is some heavy grain and some light. In the northern portion of the State wheat is expected to yield 20 bushels in large areas, while a little south of there and west are portions very light. In the Red River Valley there is a large amount of good wheat that will probably reach 15 bushels, while in Ramsey and some other counties it will not probably reach more than 7 bushels, but the most widely cultivated regions are where the grain is better, and that State will probably yield 11½ bushels, which would give both Dakotas a production of about 50,000,000 bushels, making for the three States of Minnesota and North and South Dakota 93,000,000 bushels. More extended threshing may call for some revision."

SPECIAL NOTICES.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.

Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

MILL PICKS.

Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF

Shafting, Pulleys, Hangers, Coupling, Machine and Jobbing, Etc., Etc.

"ELECTRIC" BELT DRESSING.

A WONDERFUL LEATHER PRESERVATIVE, suitable for Leather, Rubber, Cotton or Rawhide Belting. Belts dressed with this dressing will last twice as long and transmit 100 per cent. more power. Save your Belting and prevent heating of journals by running them under a reduced tension. Sold on approval to responsible parties. SEND FOR CIRCULARS.

BUFFALO SPECIALTY MFG. CO.,
67 & 69 Washington Street, BUFFALO, N. Y.

FILL CAVITIES AND SEAMS

WITH
OUR

FRENCH BUHR STONE

CEMENT

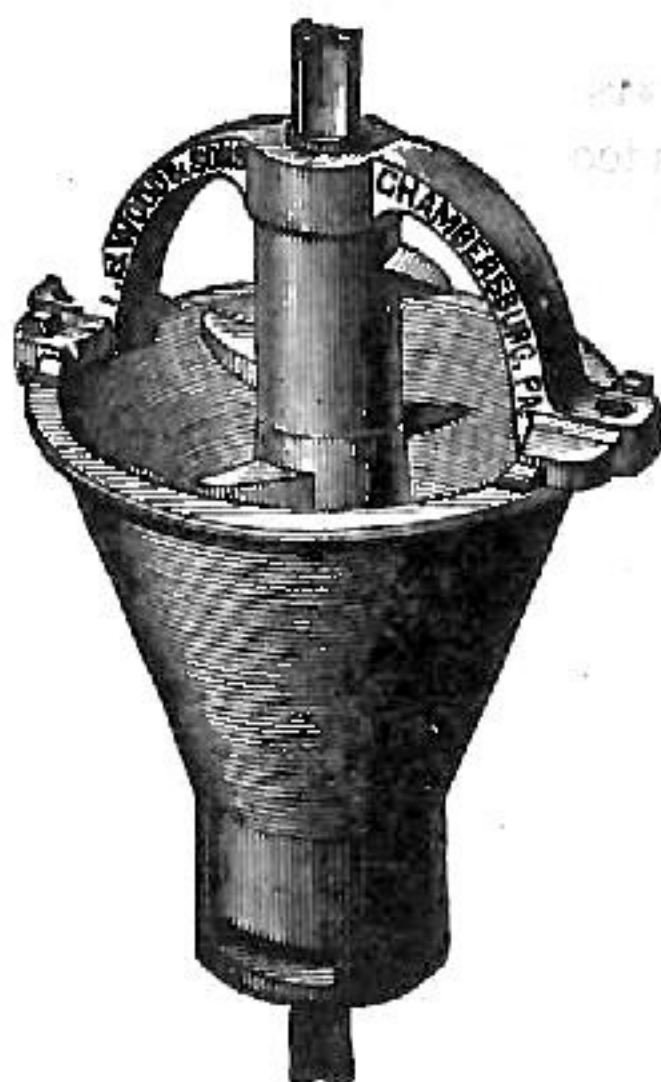
CUTS AS WELL AS STONE ITSELF.

CUTTER & WOOD,

(Successors to Union Stone Co.)

35 ARCH ST., BOSTON, MASS.

\$15



WILL BUY THE BEST AND CHEAPEST CORN & COB CRUSHER IN THE WORLD.

Our crushers are made of a "special quality" of material that insures years of service. Thousands of these crushers are in use throughout the United States and Canada. Send for circular, giving testimonials from millers who are using them, and know a good thing when they see it.

T. B. WOOD'S SONS, CHAMBERSBURG, PA.

Manufacturers of

Shafting, Pulleys, Hangers, Mill Gearing, Etc.

Practical Notes

FRUIT SOAPS.—Lemons are used for soap in many countries where they grow. When the men and women of the West Indies wish to wash their hands, they squeeze the juice of a lemon briskly in water until they are clean. There is an acid in the lemon similar to that used in soap. In countries where oranges grow in great plenty, country gentlemen use the cheapest kind for blacking their boots. The orange is cut in two, and the juicy side of one-half is rubbed on the soot of an iron pot and then on the boot. Then the boot is rubbed with a soft brush, and a bright polish at once appears.

GENERAL NOTES.

THE Dominion canals, constructed between Montreal and Lake Erie, are the Lachine, Beauharnois, Cornwall, Farran's Point, Rapide Plat, Galops and Welland. Their aggregate length is 70½ miles; total lockage, or height directly overcome by locks, 533½ feet; number of locks 53.

POINTS IN MILLING.

ACCURATE calculations of the small and not always easily detected wastes in a flouring mill would surprise many a mill-owner, whose profits appear far smaller than they should be. Take a 200-barrel mill for instance. The fireman may, without intending or even suspecting it, waste enough fuel in a day to add an unnecessary cent to the cost of each barrel of flour for the day. The engineer may waste enough steam, enough oil and enough time to add another cent to the cost of each barrel. The grain-cleaners and rolls may be so handled as to add a third unnecessary cent per barrel to cost. The purifiers may be so badly handled as to swell the unnecessary cost to four cents a barrel. The packer may carelessly pack one or two extra pounds in a barrel, adding at one stroke 3 to 6 cents to the unnecessary cost, swelling the total to 7 or 10 cents a barrel. An unnecessarily rich bran-pile may represent the twelfth cent added to the cost per barrel. In the 200-barrel mill this would mean a daily waste of \$24, or a total of \$7,488 in a year of 312 working days.

ARE these figures excessive? Not at all. I have seen, in more than one unimportant mill, wastage quite as great as these figures imply. Generally, the larger mills have no man whose business it is to look after these things exclusively. It would pay some plants, which I have visited, to employ a careful man and give him a liberal salary to detect and check the wastage. The owners are not practical men and have not the time to look after these things, but they could save money by having them looked after.

THE question is an important one all the time to every miller. Errors permitted and established never right themselves. Heroic remedies are necessary. When the miller is selling for a profit of 5 to 15 cents a barrel, the wastage of 10 or more cents a barrel assumes an importance that can not be safely ignored. Mysterious cases of "running behind while doing a large business" could doubtless be explained by the invisible, the unsought leaks in the processes of production. Every unnecessary cent added to production cost means a cent less in profit, and it may mean even a cent more added to the loss. I believe that not one mill-owner in ten has a thorough appreciation of the wastage question. I have never yet found a miller who could give the exact cost of running his plant a day, nor the approximate amount of the wastage going on under his eyes daily.

MR. Self-Satisfied Mill-Owner, have you ever looked into this question? If not, suppose you start in to-morrow morn-

ing to determine just what it costs you to produce your daily 400 barrels of flour, and also, in case the average cost is \$4 a barrel, whether or no you might have produced it for \$3.95 a barrel. The calculation will surprise you with the possibilities of profit or loss that surround you constantly. As a business man, you ought to know your business thoroughly. Do you know it thoroughly in this particular aspect? Cipher it out.

COTEMPORARY COMMENT.

If the small millers would try to join the Association, they would immediately find that this talk about there being a bar against them, or of a desire to control them, is simply bosh. The doors of the Millers' National have always been open, and there is nothing to prevent their walking in and taking a hand in the management of its affairs if they wish to. The proof of the pudding is in pulling the string, and all the small millers have to do to satisfy themselves of the good intentions of the National Association is to join it.—*Kansas City "Modern Miller."* So much for "bosh" by an earnest and deluded journal that has no standing whatever with the Millers' National Association! The plain truth is that the National Association does not wish to have the small millers come in. One of the most conspicuous and influential members of the body said, openly and unqualifiedly, in the Buffalo convention in 1888, that the National did not care a snap for the small millers, and they wished to have only mills from 200-barrel capacity upward on their list. Now, of course, Brother Hall, whom the National does not recognize, having joined forces with Colonel Cawker, who flatters himself that he is recognized by the National, and with Willie Edgar of the Minneapolis "Yahoo," which is the only publication really recognized by the Millers' National Association, must be expected to display all the rash zeal of the new convert in favoring the National, but we prefer to believe the veterans in that body on the subject of "The Small Miller in the Millers' National Association." There is, of course, plenty of "room" for the small miller in the National, as that body is composed mainly of unoccupied room, but there is no "use" for him there. We prefer the evidence of the National, furnished by its new constitution and the oratory of its leading members, to the unsupported assertions of purblind new converts. It is simply a mechanical impossibility that even so astute a man as Brother Hall should be able to know the aims and wishes of the members of the National better than they themselves know them. If Brother Hall is going to set up for a "mind-reader," we shall expect to see him abandon journalism soon.

There is a splendid outlook for another "boom" year in southern prosperity. Money is plentiful, the prospects are good for the crops this Fall, and, unless some unforeseen disaster occurs, 1891 will outstrip any of the preceding years in the advancement of southern industries and the development of southern resources.—*Atlanta "Dixie."*

A dairyman at Urbana, Ill., is said to object to electric lights near his place, because they keep the cows awake, and their yield of milk is consequently decreasing, both in quality and quantity.—*New York "Mechanical News."*

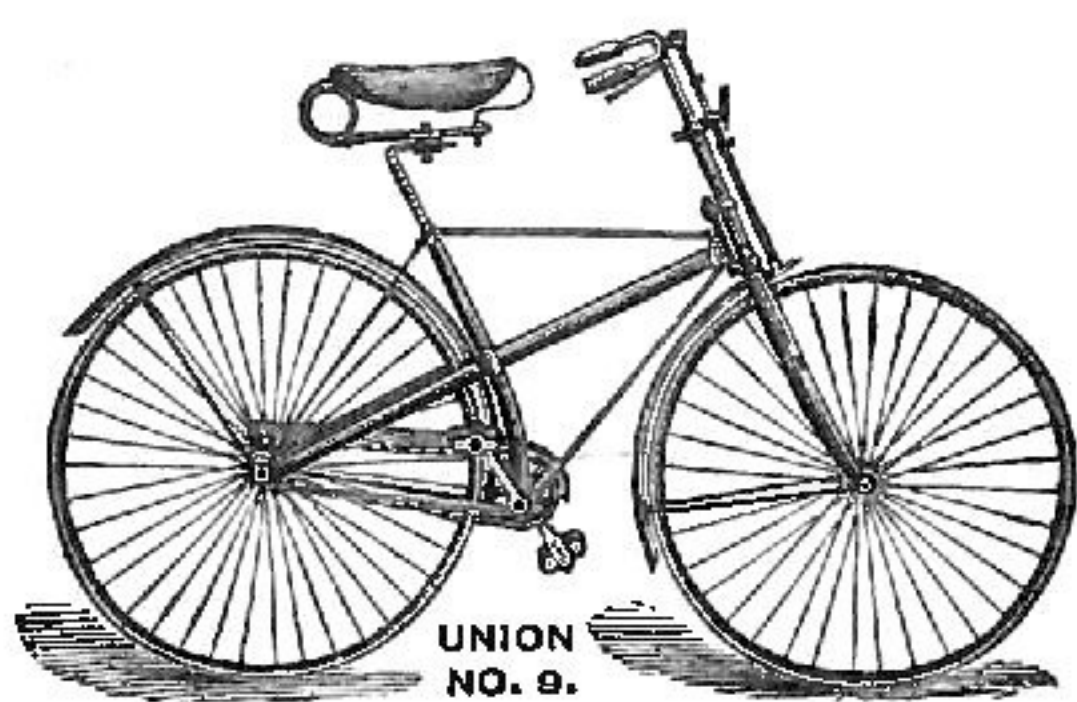
A NEW METHOD OF TREATING DISEASE.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

THE UNION



Is the peer of High Grade Bicycles in the country. It combines with its beauty, a rare degree of both strength and ease, and the exquisite workmanship on the wheel puts it far ahead of all competitors.

Write for New Catalogue.

UNION CYCLE MFG. CO., - HIGHLANDVILLE, MASS.

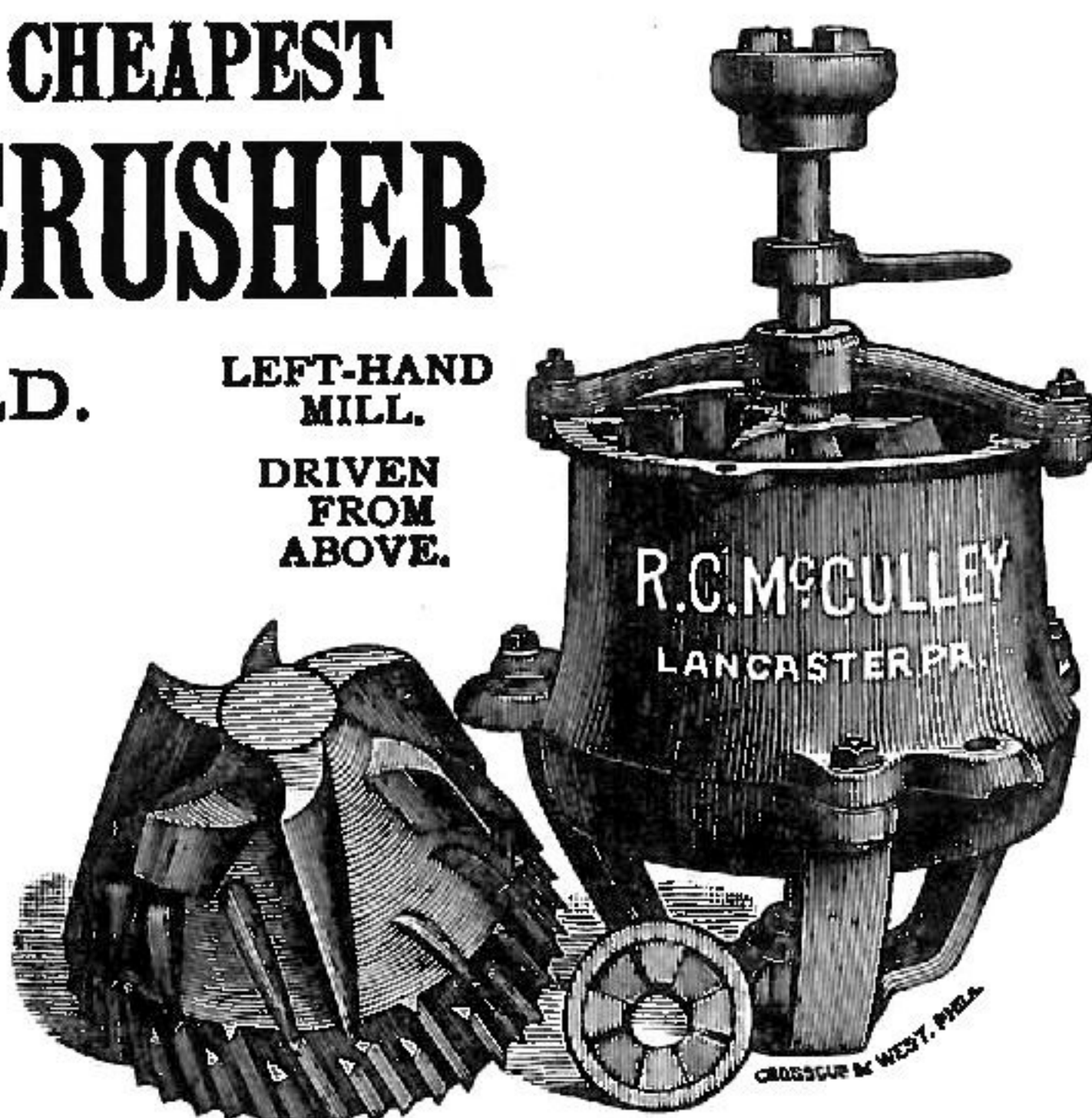
THE BEST AND CHEAPEST CORN AND COB CRUSHER

IN THE WORLD.

All wearing parts cast of a steel mixture. Notice difference in construction. Most area where most work is done, where all other crushers have least area where most work is done. Low priced machinery is not the cheapest, considering durability and efficiency. Sent on 80 days' trial when satisfactory reference is furnished.

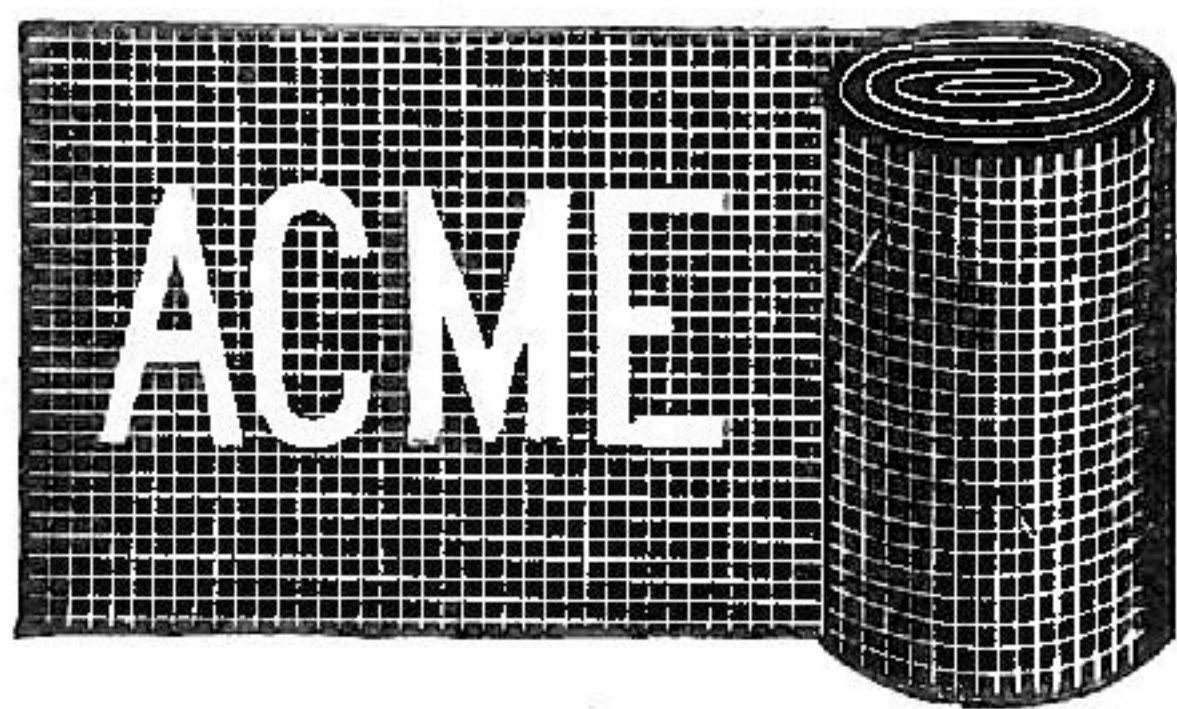
Please Send for Circulars.

LEFT-HAND
MILL.
DRIVEN
FROM
ABOVE.



RIGHT-HAND RUNNER.

R. C. McCULLY, LANCASTER, PENN.



WHEN YOU WANT
WIRE CLOTH

SEND TO
Brooklyn Wire Cloth Works,
107 JOHN STREET, NEW YORK.

WHEN WRITING TO ADVERTISERS

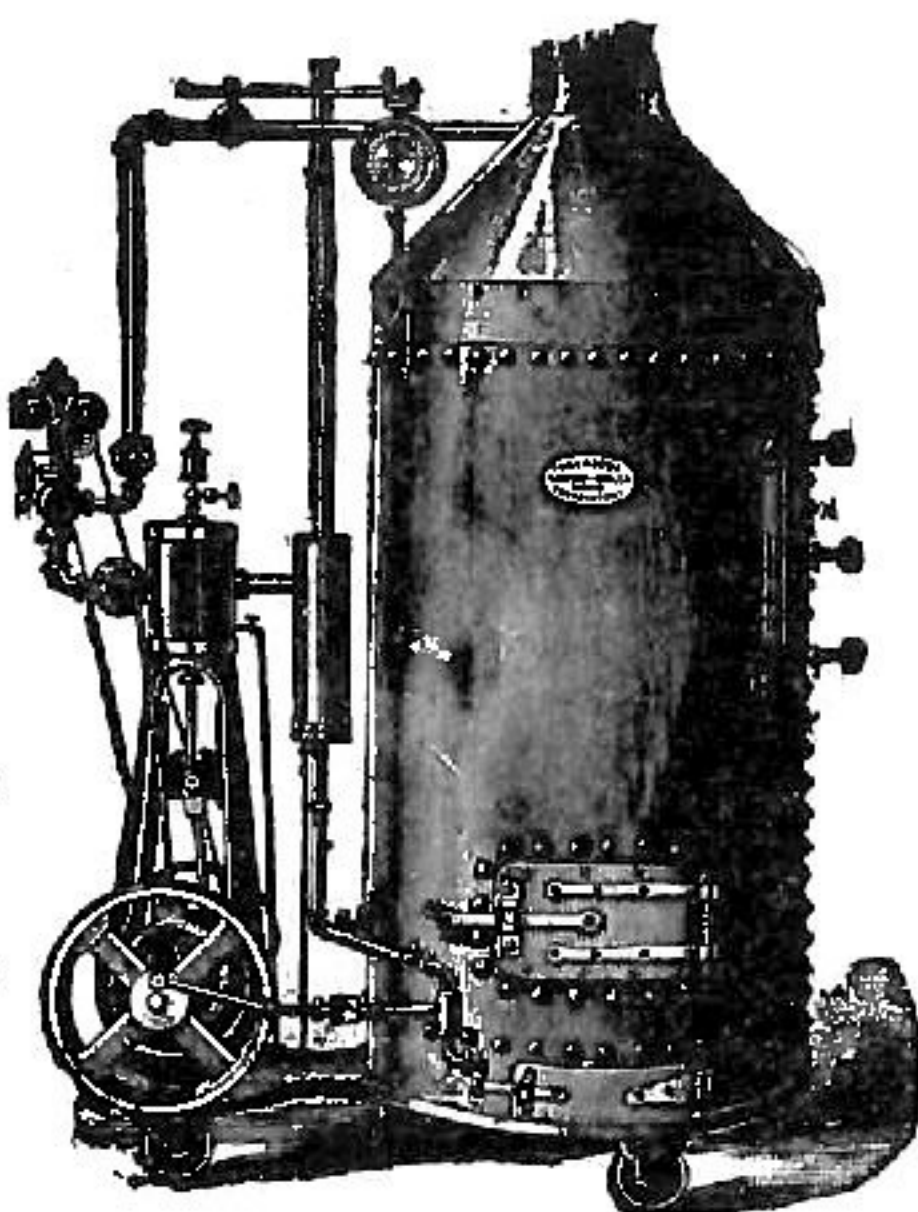
PLEASE MENTION

"THE MILLING WORLD."

TONAWANDA ENGINE AND BOILER WORKS

A Large Assortment of Machinery.

The Best 6-Horse Power Semi-Portable Up-right Engine and Boiler Made.



SPECIAL PRICE. GUARANTEED.

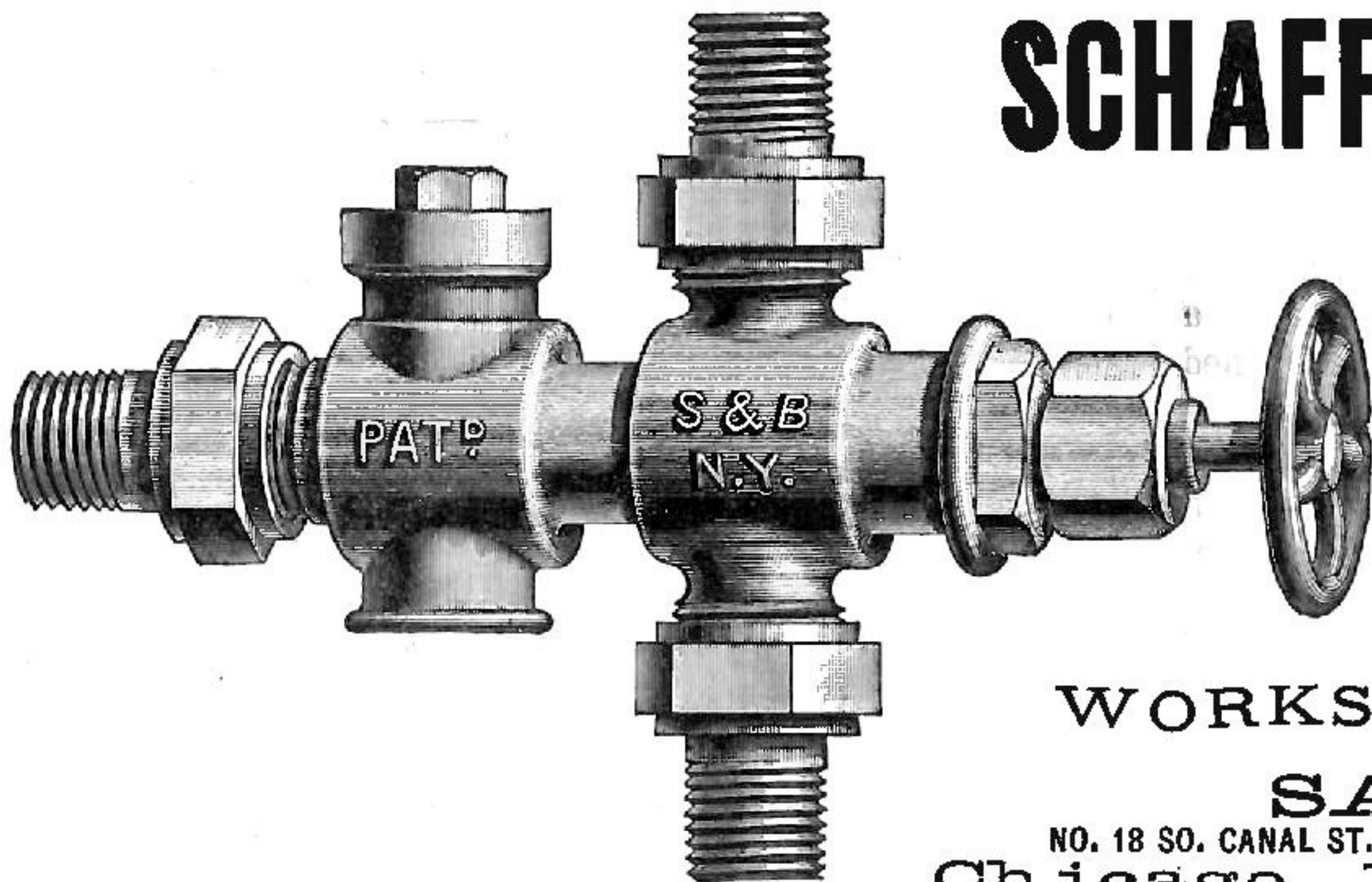
SEND FOR CATALOGUE.

ARMITAGE, HERSCHELL & CO.

Tonawanda N. Y.

Sometimes Corrugated Iron is represented to be "just as good as" our Patent Edge Corrugation. While this is complimentary to our material, unfortunately it does not work out well in practice. The only Corrugated Iron that can be recommended for roofing is manufactured by

The Cincinnati Corrugating Co.
PIQUA, OHIO.



SCHAFFER & BUDENBERG,

—MANUFACTURERS OF—

Pressure Gauges for all Purposes

ENGINE COUNTERS AND REGISTERS.

IMPROVED RESTARTING INJECTORS
AND EXHAUST STEAM INJECTORS.

PYROMETER AND THERMOMETER, STEAM TRAPS, REDUCING VALVES, AND ENGINE AND BOILER APPLIANCES IN GENERAL.

WORKS AT BROOKLYN, N. Y.

SALESROOMS:

NO. 18 SO. CANAL ST.,
Chicago, Ill.

NO. 40 JOHN STREET,
New York.



The Farmville, Va., Mills remodel.

The Cincinnati, O., Elevator Co. received.

A. Reaves & Son, Atlas, Va., remodel to rolls.

Hawk & Barre, millers, Pioneer, O., dissolved.

Benjamin, Tex., men build a corn and flour mill.

Theo. Randall, Madison, Fla., builds a grist-mill.

R. E. Hale, Calaways, Va., builds a 30-barrel mill.

Suter Bros., Woodland, W. Va., put in a new mill.

Geo. & John Donnell, millers, Donnellson, Ia., quit.

Lyndane, Jones & Co., Derwood, Md., improved mill.

Waters & Wannakee, Burnt Mills, Md., remodel mill.

W. J. Cash, Cool Well, W. Va., build a 30-barrel mill.

I. A. Barber, Easton, Md., starts a corn and feed mill.

Brown & Davis, Federalsburg, Md., build a flour-mill.

Simmons & Son, feed-mill, Los Angeles, Cal., sell out.

T. B. Rogers, Antioch, W. Va., builds a 25-barrel mill.

J. Grim, Hellertown, Pa., builds a 50-barrel roller mill.

W. H. Francis, miller, Thompsonville, Conn., assigned.

Bostwick & Wolcott, Franconia, N. H., build a grist-mill.

C. E. Ballou, News Ferry, Va., builds a 35-barrel roller mill.

E. C. Buchanan & Co., Memphis, Tenn., project a grain-elevator.

Boutwell & Sons' flouring-mill, Troy, N. Y., burned; loss \$100,000.

J. A. Geissinger, Freemansburg, Pa., builds a 50-barrel roller-mill.

Hankey & Rigg, grist-mill and elevator, Petoskey, Mich., dissolved.

C. C. & L. A. Nickells, Nickells Mills, W. Va., start a 50-barrel mill.

C. R. Leonard and others, Easton, Md., will build a roller flouring-mill.

J. Webster, Calvary, Md., remodels his buhr-mill to a 25-barrel roller mill.

W. J. Derry, Dille's Bottom, O., puts in a new outfit of milling machinery.

E. B. White & Bro., Leesburg, Va., build a corn-mill; they want machinery.

Libby's flour-mill, Hudson, Wis., burned; loss \$6,000, with \$2,500 insurance.

S. C. Douglass & Co., Philippi, W. Va., build a 50-barrel roller flouring-mill.

Jos. Klingenberg, Indiana, Pa., builds a steam roller mill of 50-barrel capacity.

E. Cline & Co., Fort Defiance, Va., have started a new 50-barrel roller flouring-mill.

Swartley Bros. & Co., Doylestown, Pa., are building a 100-barrel roller flouring-mill.

J. W. Anderson & Co., St. Mary's, O., build a 50-barrel steam roller flouring-mill.

The Cadwallader Milling Co., Fostoria, O., are building a 50,000-bushel grain-elevator.

The Harter Milling Co., Fostoria, O., are building a 400,000-bushel grain-elevator.

Wm. Winters, Griffin, Pa., remodels his 40-barrel mill to rolls with greater capacity.

Miller & Griess, Pottstown, Pa., increase the capacity of their mill to 150 barrels a day.

T. M. Holt, Haw River, N. C., builds a 50-barrel roller flouring-mill; machinery is wanted.

G. M. Brown, Woodville, Va., builds a short-system roller flour-mill; he wants machinery.

Ira C. Fuller, Brookville, Pa., will build a roller flouring-mill in Punxsutawney, Pa.

The Carolina Roller Mills & Supply Co., Fayetteville, N. C., added new flouring machinery.

M. H. Moore, Mt. Joy, Pa., rebuilds his burned flour-mill and adds a 6,000-bushel elevator.

A. A. Beckwith's flour and feed mill, Norwich, Conn., burned; loss \$35,000; insurance \$11,000.

G. T. Donnelly and M. E. Threadgill, Arlington, Ala., will build a grist-mill; machinery is wanted.

Hale Bros., Lyons, Mich., are putting in 2 pairs of rolls furnished by The Case Mfg. Co., Columbus, O.

Shehan, Bean & Co., Bardstown, Ky., are putting in rolls furnished by The Case Mfg. Co., Columbus, O.

The Case Mfg. Co., Columbus, O., have orders from Essmuller & Carry, St. Louis, Mo., for 12 pairs of rolls.

Stewart's flouring-mill, near Bellefontaine, O., burned; loss \$12,000; insurance \$1,200; fire incendiary in origin.

B. & J. A. Davidson, Gibsonville, S. C., formed a stock company to build a corn and flour mill; machinery is wanted.

Kendrick, Pettus & Co., Clarksville, Tenn., will improve their flour-mill at an expense of \$6,000; machinery is wanted.

Hayden & Sons, Elizabeth, Pa., are putting in 2 additional pairs of rolls, furnished by the Case Mfg. Co., Columbus, O.

Halsey & Boysen, Galveston, Tex., are putting in an additional stand of rolls furnished by The Case Mfg. Co., Columbus, O.

The Farmers' Alliance, Buda, Tex., charter the Buda Milling & Ginning Association, capital stock \$20,000, to build a grist-mill.

Henry and John C. Oswald's Crystal Flour Mill, Minneapolis, Minn., burned on August 16. Loss \$40,000; insurance about \$20,000.

T. J. Toster and others, Stanford, Ky., incorporated New Stanford Roller Mill Co., capital \$30,000, to operate the Stanford flouring-mill.

Corey & Heastin, Algonquin, Ohio, have placed their order with The Case Mfg. Co., Columbus, O., for 6 pairs of rolls, 2 flour-dressers, 1 centrifugal reel and other machinery and supplies.

J. L. Sebring's grain-elevator, Kalamazoo, Mich., burned; loss \$10,000; insurance \$8,000. The elevator contained 20,000 bushels of wheat, worth \$17,000, belonging to farmers, which was not insured.

The Case Mfg. Co., Columbus, O., have the contract of Jacob Holschuch, Willow Wood, Ohio, for the necessary rolls, scalpings, flour-dressers, purifiers and other machinery for a complete short-system mill.

The Case Mfg. Co., Columbus, O., have received the contract of Smith & Roper, Hobart, Ind., for the necessary rolls, scalpings, flour-dressers, centrifugals and purifiers for a full roller mill on the Case system.

B. F. Starr & Co., proprietors of the Baltimore Mill-Furnishing House, Baltimore, Md., have placed orders with The Case Mfg. Co., Columbus, O., for 16 pairs of rolls, 9 flour-dressers, 7 round scalpings, 1 purifier and 1 bran-duster.

A letter from Dublin, Ireland, says: "In Skibbereen a measure of potatoes which last year sold at 4 pence now sells at 10 pence. The crop is certain to be exhausted by October. The famine fever has appeared in the Blasket Islands on the west coast of Ireland. The potato blight is extending to several districts in Leitrim and Mayo."

It is estimated that the potato crop of the United States will be short 100,000,000 bushels and the European crop 230,000,000 bushels. The crop of onions, it is reported, will also be very short. The commodities are likely to command fancy prices next fall and winter, judging from the crop reports that are being received from the different States.

Whitney Williams, of Rochester, N. Y., formerly of Batavia, N. Y., has bought one-half of Mr. Chase's interest in the flouring-mill business of Chase, Hibbard & Co., of Elmira, N. Y., and a stock company has been formed known as the Chase-Hibbard Milling Co., of which Mr. Williams is secretary and treasurer. The capital stock of the concern is \$60,000.

The Case Mfg. Co., Columbus, O., have orders for their celebrated automatic feeds, to be placed on rolls of other manufacturers, from Essmuller & Barry, St. Louis, Mo.; Walters & Wannakee, Burnt Mills, Md.; Jacob Holschuch, Willow Wood, O.; J. W. Marquand, Marquand, O.; Gwinn Bros., Huntington, W. Va.; Carlisle Milling Co., Carlisle, Ky.; Wichita Roller Mill Co., Wichita Falls, Tex.; John Hanke, Trenton, Mo., and Harshbarger Bros., Milton, W. Va.



W.A. BINGHAM,

MANUFACTURER OF

FLOUR SACKS.

178 Duane Street,

New York



THE BEST ARE THE CHEAPEST.

MILLERS' FLOUR SACKS A SPECIALTY.

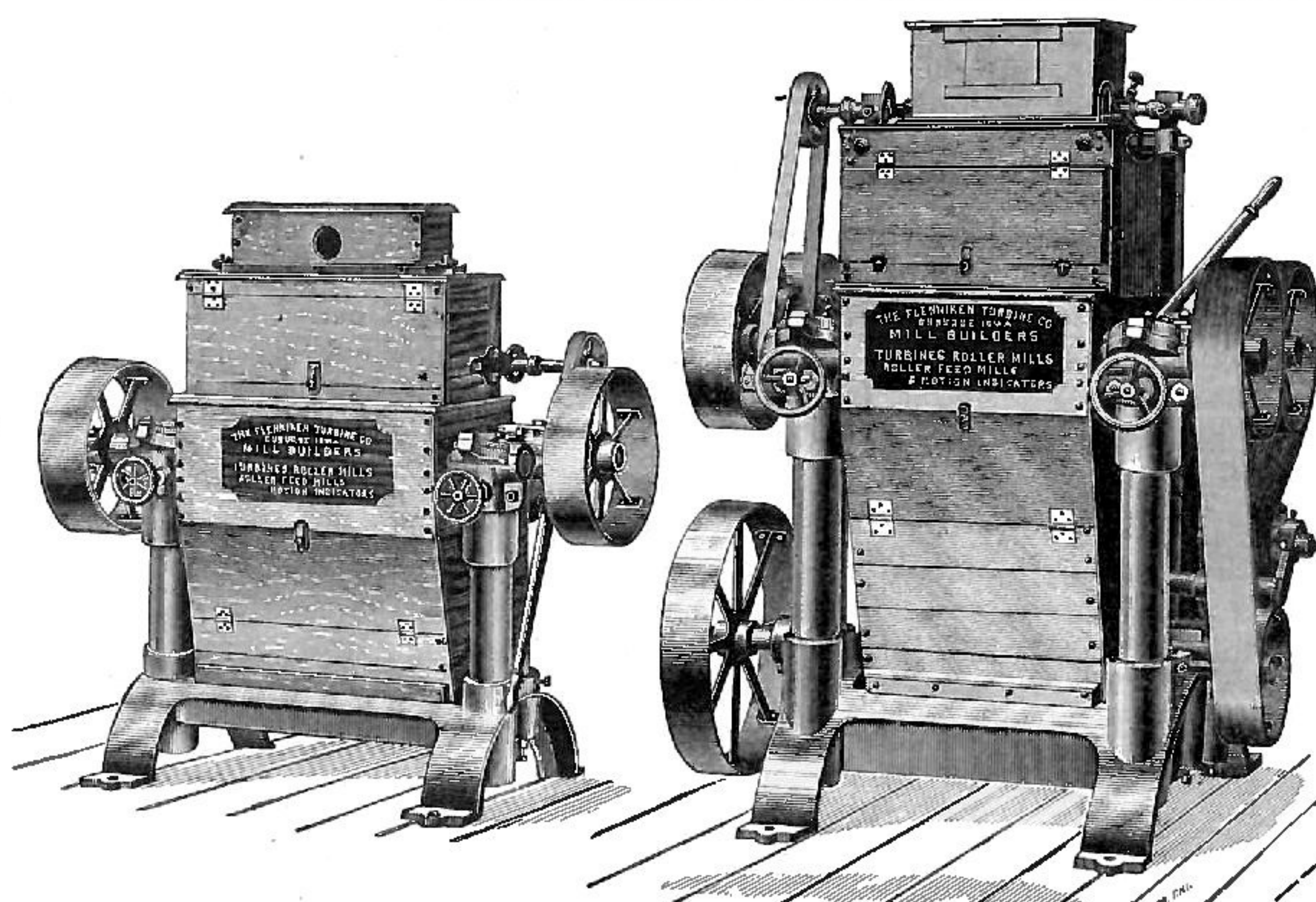
THE PATRONAGE of the MILLING TRADE is MOST RESPECTFULLY SOLICITED.

ONE REDUCTION TO THE FRONT!

*Ye jolly millers, one and all,
Who granulate with burrs,*

A Moses has Come to Deliver You from Egypt. Cease
Trying to Make Bricks without Straw. The Red
Sea of Expense Has Been Divided.

**The Wilderness of Reductions has Been Shortened. There
is Manna in Abundance for Those Who Believe.
Listen to the Glad Tidings of Great Joy!**



**ONE REDUCTION ON ROLLS IS
A SUCCESS!** Two years of experience in a dozen States, with all kinds of Wheat and diversified climates, has justified us in recommending its adoption in place of burrs in each and every case, whether for grinding Wheat, Rye or Buckwheat. We have perfected Roller Mills, Bolts and Scalpers peculiarly adapted to the wants of Small Mills, and all our machines *infringe no patents*, and no claims are made that they do.

Having consummated a bargain with **MR. O. C. RITTER**, the author and patentee of **One Reduction**, which gives us the *exclusive right* to construct mills under his patents, our patrons in the future will receive a license from Mr. Ritter.

SPECIALTIES!

Graham Roller Mills, Round Reels and Scalpers, Sectional Round Reels, Grain Separators, Motion Indicators. Before buying any of these machines send for our prices and descriptive circulars.

SPECIALTIES!

Second-Hand Machinery, and Bargains in Every Line.

SEND FOR CATALOGUE OF

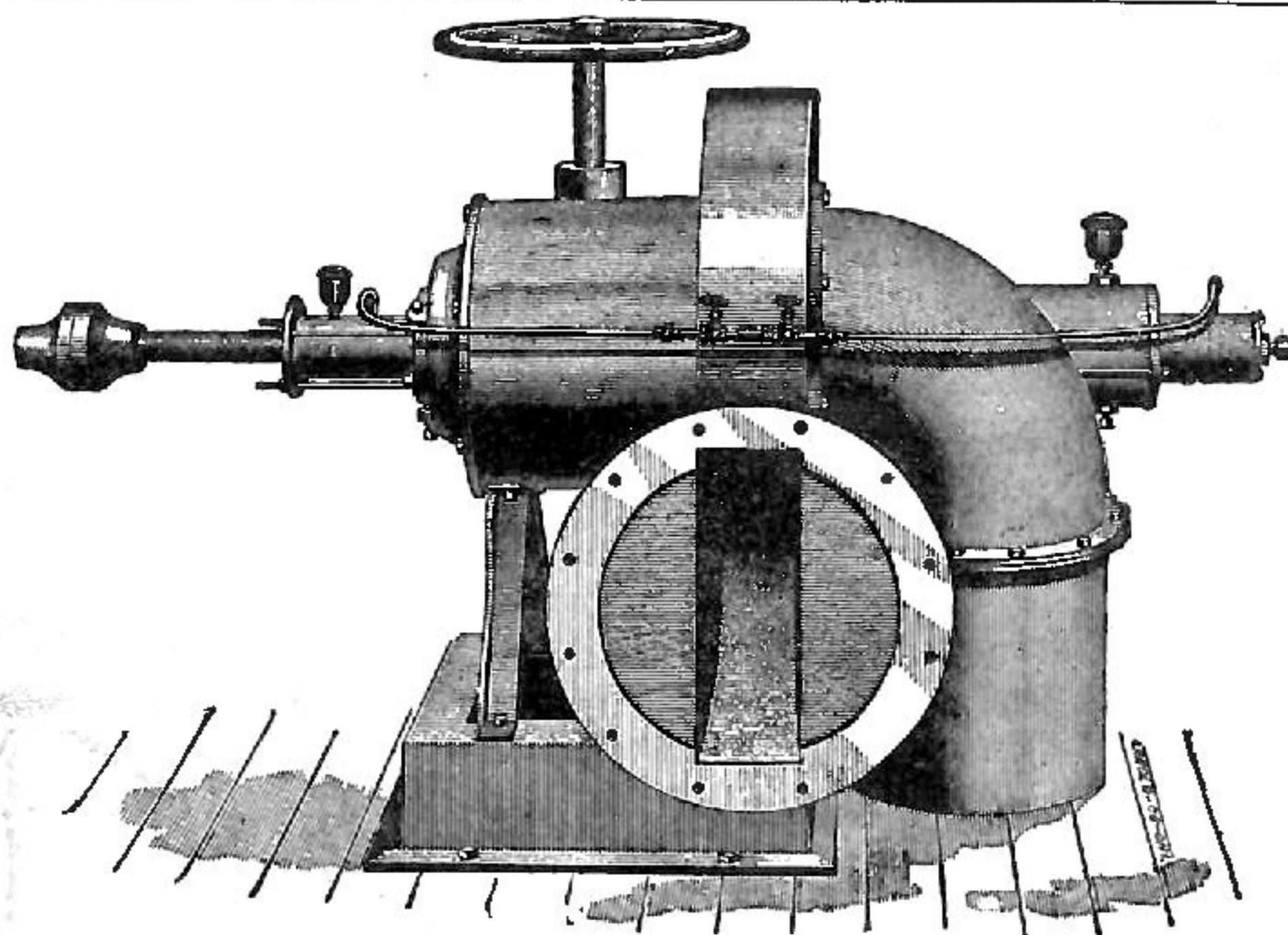
The Best Turbines!

VERTICAL OR HORIZONTAL,
With or Without Iron Flumes,

—BUILT BY THE—

Flenniken Turbine Co.

DUBUQUE, - IOWA.



EUROPEAN ECHOES.

COLONEL Meade, one of Her Majesty's Inspectors of Factories, states, in his report on the bakeries and flour-mills of the West of England, that he has often found children under 13 years of age doing six full days' work in the week, and that he has known lads who have gone to work at one or two in the morning, and have remained at work for 15 hours at a stretch, to be denied the weekly half-holiday to which they are entitled.

THE government of India, at the instance of the secretary of state, is in correspondence with local governments and administrations regarding the expediency or otherwise of introducing grain-elevators in India, with the view of cleaning, grading and handling wheat. The introduction of these methods, it is to be feared, will be useless until the trade shows itself ready to buy clean, and nothing but clean, wheat. The elevator system has the merit of doing away with the necessity for arbitration and analysis of samples. It is being introduced by Russia and may serve to increase the advantages which that country already possesses over India in its competition for the wheat trade of Europe.

SAYS a Parisian journal: Supposing the population of Paris to be 2,400,000 individuals, a figure which is not far from reality, and an average consumption of 500 grammes per head, Paris consumes 1,200,000 kilogrammes of bread per day. This enormous figure gives the mind no idea, but it can be placed in a more striking form, which we owe to one of our most distinguished engineers. If we suppose all the bread consumed at Paris in one day to arrive in the form of a roll of great length penetrating into the town with constant speed, and supposing this roll to be the average thickness of bread of the first quality, the weight of which is about one kilogramme per meter, a very simple calculation shows that this roll should find its way into Paris without interruption or stoppage of any kind at the rate of 50 kilometers per hour, equivalent to that of our express trains.

A LONDON cablegram of August 16 says: The wheat market is strongly advancing, owing to the publication in yesterday's "Times" of that journal's formal estimate of the English wheat crop. This estimate is based upon reports from more than 400 correspondents scattered over the United Kingdom, and that they are correct enough for all practical purposes is proved by the fact that in two years out of three the "Times" estimate has come within one-tenth of a bushel per acre of the official returns published after the crop had been harvested. The estimate of the yield of wheat this year is 3.1 per cent. under the average and 4.1 per cent. under the yield of last year. This promises a yield of 28½ bushels per acre on about 2,530,000 acres, giving a net yield of 72,105,000 bushels for 1890, against 75,883,611 for 1889. The "Times" further says that everything now depends upon season, and that its forecast depends upon fair weather for realization. The "Times" also says that Great Britain will be dependent upon foreign supplies for some 19,000,000 quarters of wheat, or more than 150,000,000 bushels. An estimate obtained from the highest authorities in France indicates that the French importations of wheat will be 25,000,000 bushels above the importations last year.

SAYS the London, England, "British Baker, Confectioner and Purveyor": Among the interesting exhibits in the Edinburgh Exhibition, to bakers, at least, perhaps not the least so, is the American tent where Indian-meal dainties are prepared by deft hands, to be partaken of with coffee, tea or milk at very moderate prices. The tent is in charge of a smart American gentleman, who has been commissioned by the State of Nebraska, one of the important Western States of the American Union, and his main object is to convince the people of this country that they are making a great mistake in not using more of the finer kinds of Indian meal for human food. We feed our horses, we feed our cattle and, above all, we fatten our pigs on the sweet and nourishing

preparations of maize. Large quantities of Indian corn, it is understood, are received into our breweries and distilleries; but for the food of both rich and poor we almost entirely ignore Indian meal. Colonel Murphy, the gentleman referred to, who has seen service in the Mexican War, is very hopeful of changing all this. Last year, at the Paris Exhibition, a good deal of work in this direction was performed. Besides the erection in the Edinburgh Exhibition, he expects to have an exhibit of a similar kind in the forthcoming exhibition which is to be opened in the east-end of Glasgow towards the end of the year, as well as exhibitions in other cities of the United Kingdom, and of the Continent as well, as opportunity offers. This is not at all a trading adventure, but because the colonel and his American friends sincerely think that we ignorant Britons are standing very much in our own light in not using Indian meal more freely. But with the State of Nebraska it is virtually a work of necessity to create a greater demand for Indian corn somehow or anyhow. The growth of Indian corn has of late years become so enormous in the new States of the Union that it has often to be disposed of at most unprofitable prices. Why, the colonel says, can this nourishing Indian meal not be introduced as excellent food for the large standing armies of the Continent? The saving in cost of the upkeep of these armies would, he argues, be very great. Why, also, may it not be used more largely, at least, in poorhouses and reformatories, and in such-like establishments? There are special ways of preparing the meal, and making it up with milk, butter, sugar, etc., which make the preparations truly enjoyable in the shape of waffles and dainties of great variety. These are used and much esteemed by all classes in the United States, from the President on his exalted seat of honor, the judges performing their dignified functions, and in all the large hotels which are such a peculiar feature of American life. American mush, which is simply Indian-meal porridge, and corn dodgers and Johnny-cakes can be had in Delmonico's famous establishment in New York, and, indeed, everywhere. We trust the colonel will be very successful in his important mission. People do not readily change the diet they have been accustomed to for generations: and yet, great changes have been made in the past. We read in the old story-books of the kings and heroes of old dining daintily on a dish of furmetty. Now, we fancy it would puzzle a good many people to say what furmetty was. So the time may come when we will be becoming fat and well-favored on a succulent diet of sweet corn puddings and other good things of a like kind.

A NEW MAGAZINE.—*The Polytechnic* is the name of a new magazine to be published in Chicago, the initial number of which will be issued next month. Like the London magazine of that name it will be the organ of a Polytechnic Institute, which in this case has been lately started in Chicago, and will be modeled after the famous London institute of similar name, an interesting account of which was given in the *Century* for June. The first number will be largely descriptive of the work of the Institute, especially its trade schools, a peculiar feature of which is that students may earn their expenses while in attendance, and can learn almost any trade. As this promises to solve the vexed apprenticeship question, all master associations are warm supporters of the movement. An article on the new Evening Medical College of Chicago is also included in this number. The ladies will be interested in the description of the cooking, millinery and dressmaking schools of the Chicago Polytechnic Institute. Published at the S. E. corner Madison street and Fifth ave., Chicago, Ill. Sample copy, 10 cents.

CATARRH.

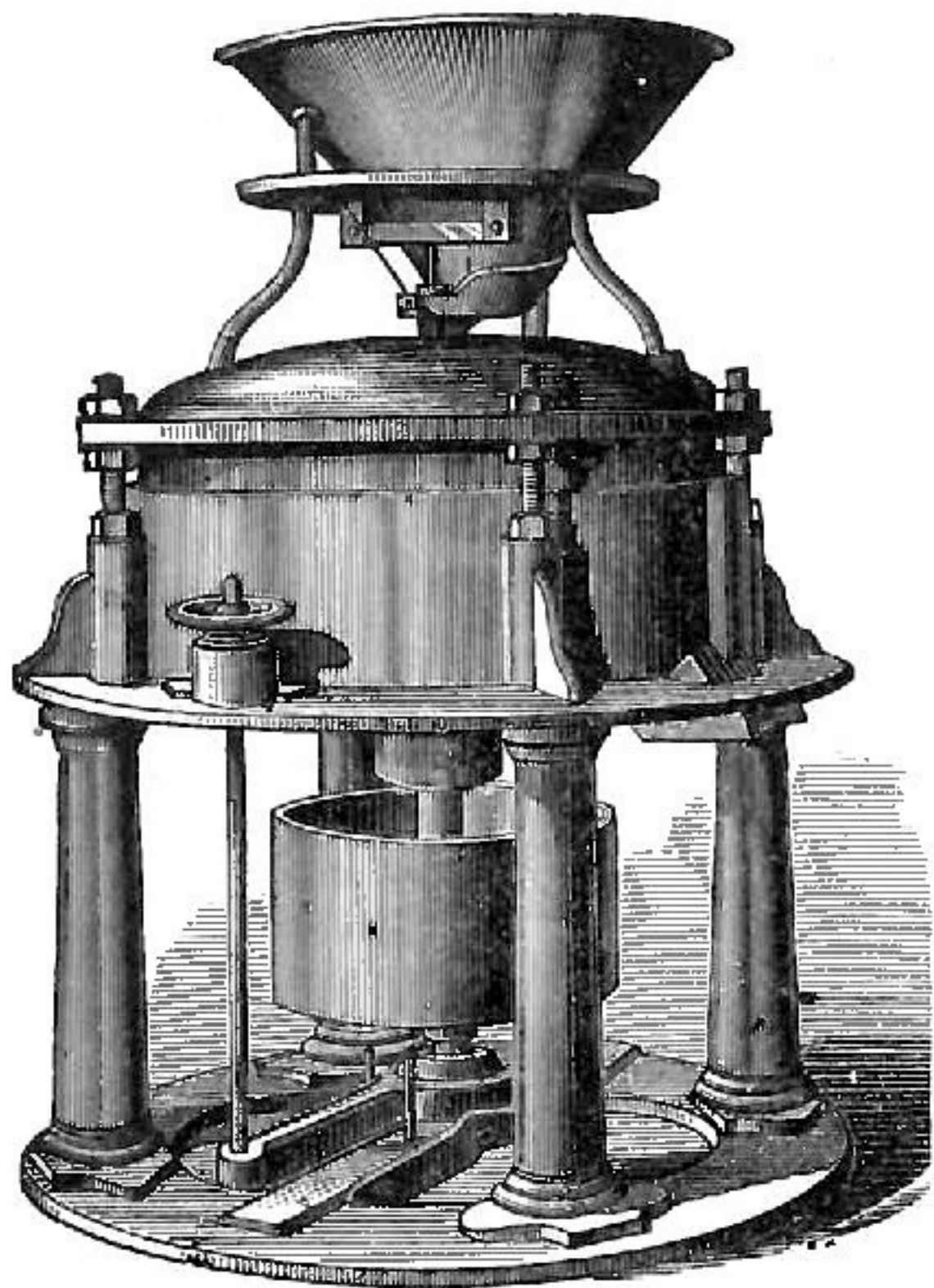
CATARRHAL DEAFNESS—HAY FEVER.

A NEW HOME TREATMENT.

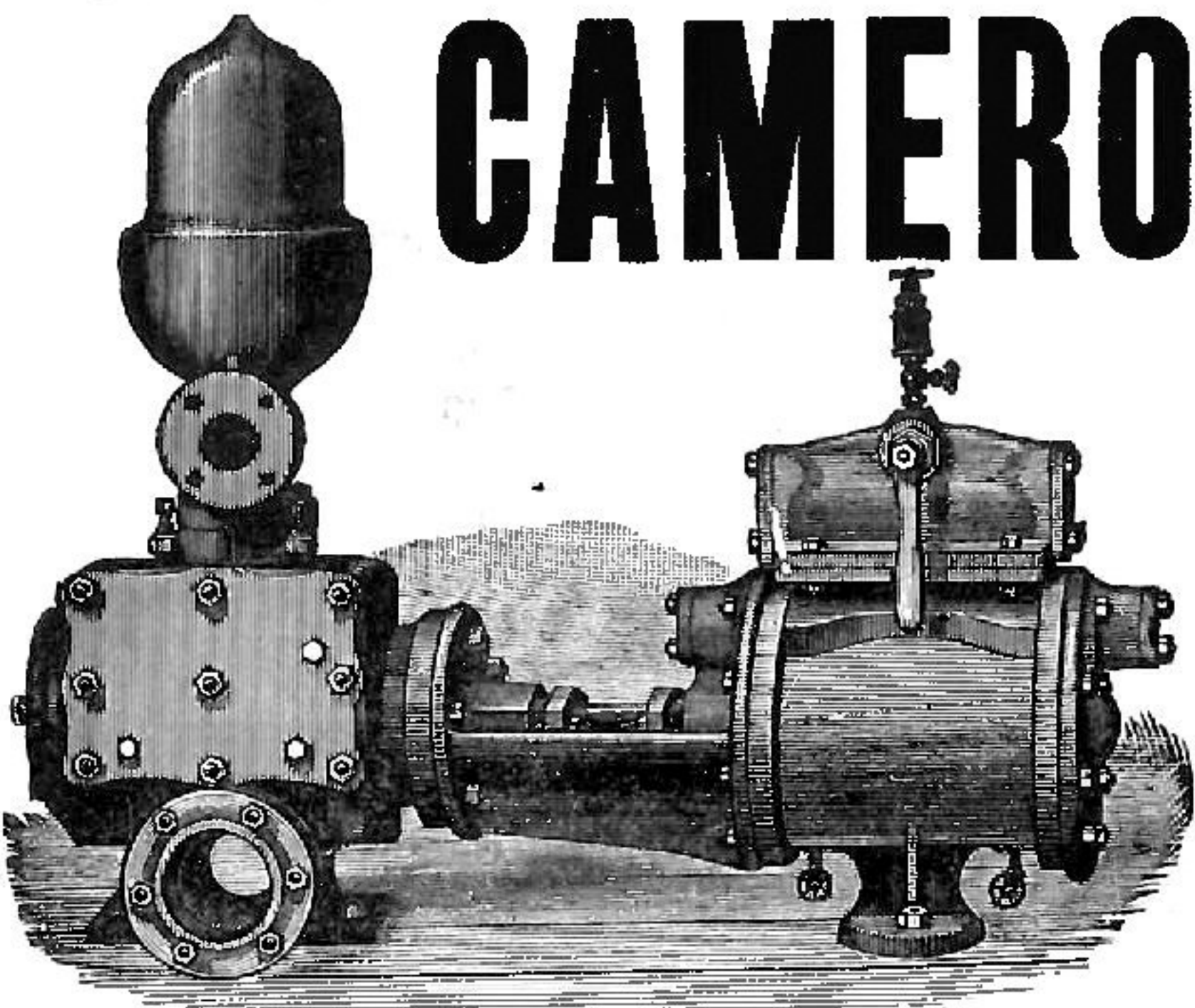
Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate*.

Sufferers from Catarrhal troubles should carefully read the above.



MUNSON BROS., UTICA, N. Y.,
—MANUFACTURERS OF—
PORTABLE MILLS
FOR CORN AND FEED GRINDING,
—WITH—
FRENCH BUHR and ESOPUS STONES
Shafting, Pulleys, Hangers, Etc., and General
Mill Furnishings.
SEND FOR CATALOGUE AND PRICE LIST.



CAMERON STEAM PUMP

THE STANDARD OF EXCELLENCE.

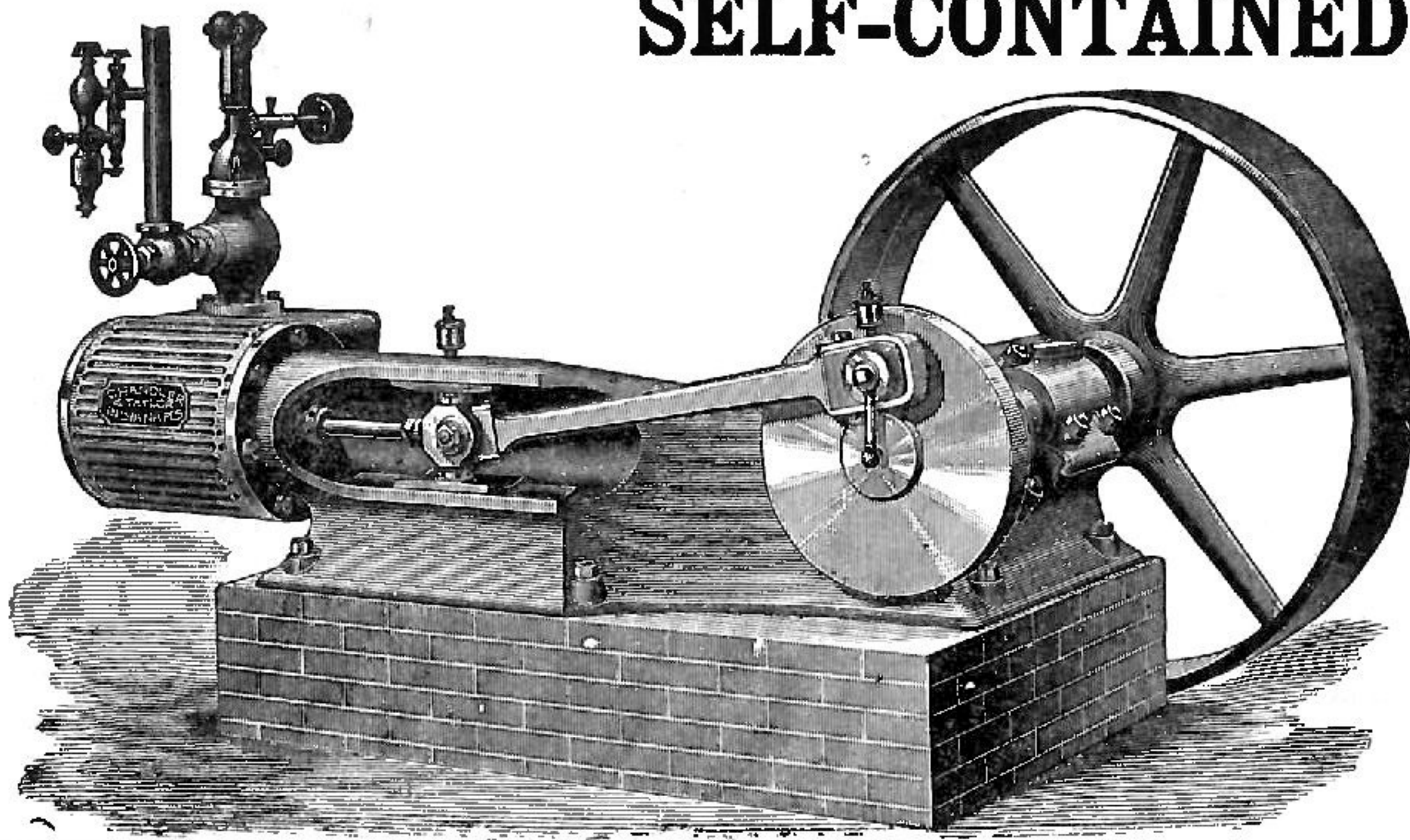
SIMPLE! COMPACT! DURABLE!
"NO OUTSIDE VALVE GEAR."

Steam, Air & Vacuum Pumps in Every Variety

FOR ILLUSTRATED CATALOGUE ADDRESS

THE A.S. CAMERON STEAM PUMP WORKS

Foot of East 28d Street. .. New York.



SELF-CONTAINED STEAM ENGINES

Stationary or
Semi-Portable.

High Standard Maintained.
Prices Greatly Reduced.

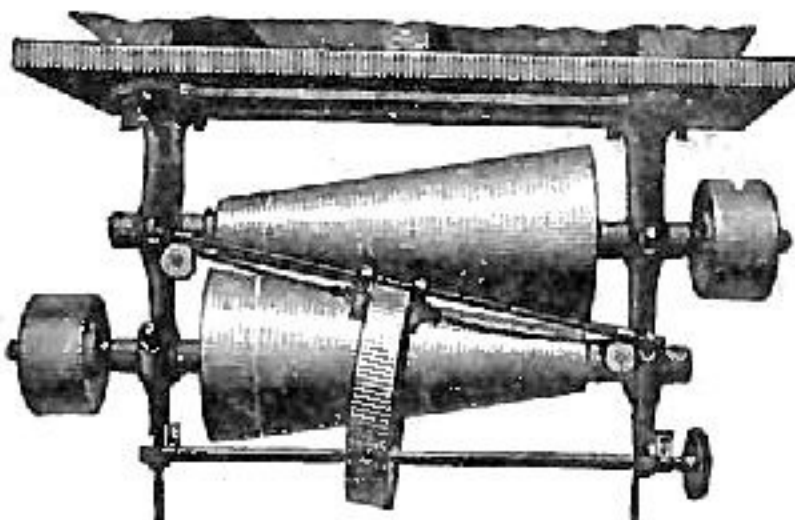
WRITE FOR NEW ILLUSTRATED
CATALOGUE NO. 32.

Chandler & Taylor Co.
Indianapolis, Ind.

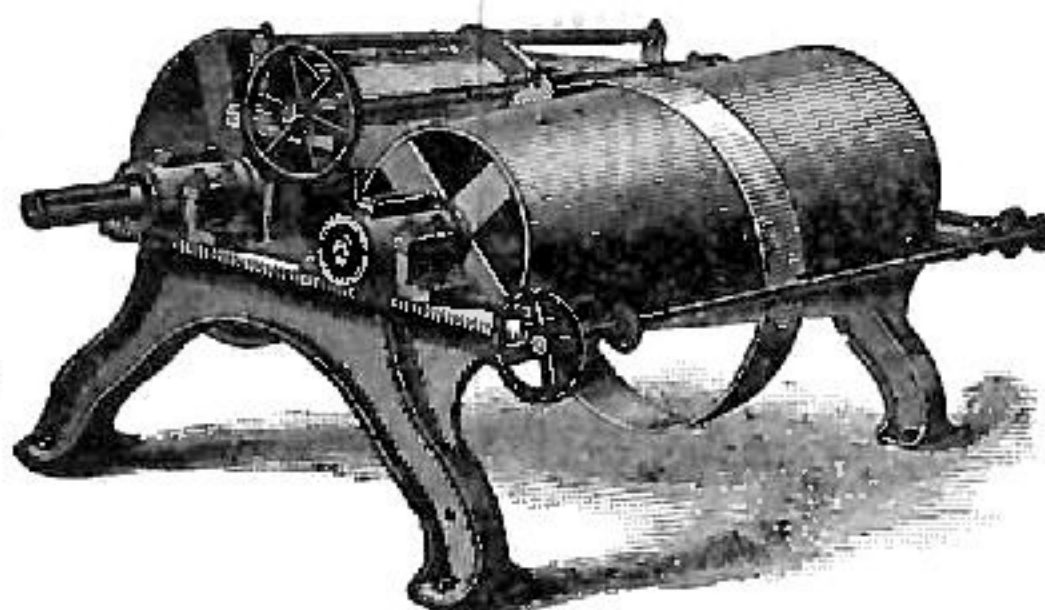
Engines, Saw-Mills and Drain Tile
Machinery a Specialty.

THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is



fluctuating. All sizes made from $\frac{1}{2}$ Horse Power to 50 Horse Power. **SEND FOR ILLUSTRATED CATALOGUE.**

EVANS FRICTION CONE CO., 85 Water St., BOSTON.





OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., August 23, 1890.

Friday of last week was a day of confused markets on conflicting reports. Wheat was irregular. Private cables made the English wheat crop short by about 38,000,000 bushels, and placed English import requirements at 152,000, bushels for the ensuing year. A report that several Russian ports would probably be closed on account of the cholera aided to strengthen the markets. Northwestern crop reports were unfavorable generally, and the rise in silver still further strengthened the bull elements. August wheat closed in New York at \$1.04½, September at \$1.05¼, October at \$1.05½, November at \$1.06¼, December at \$1.07½, and January at \$1.08. Atlantic port receipts were 103,725, exports 196,117, and options 5,600,000 bushels. August corn closed at 54½c., with receipts 80,585, exports 115,321, and options 600,000 bushels. August oats closed at 41½c., with receipts 72,880, exports 11,909, and options 110,000 bushels. Wheat flour was strong and quiet, with receipts 4,191 sacks and 24,380 barrels, and exports 24,880 sacks and 18,513 barrels. The minor lines ruled featureless generally.

Saturday brought another upward movement in wheat, on the continued rise in silver, on stronger cables, and on large option purchases by European speculators. August wheat closed at \$1.06½, and December at \$1.09½, with receipts 70,827, exports 82,108, and options 3,400,000 bushels. The estimates from the Northwest placed the Minnesota wheat crop at 43,000,000 bushels, against 48,000,000 bushels last year, and the total for Minnesota, North Dakota and South Dakota at 93,000,000 bushels, against 103,000,000 bushels last year. The shorts in wheat and everything else were frightened by the rise in silver. August corn closed at 57½c., with receipts 41,975, exports 80,057, and options 1,200,000 bushels. August oats closed at 43c., with receipts 124,000, exports 16,538, and options 115,000 bushels. Wheat flour was confused. Receivers and millers held some brands 15@25c. higher. Receipts were 4,082 sacks and 22,413 barrels, and exports 22,490 sacks and 858 barrels. The minor lines were sympathetically strong.

Monday brought active, unsettled, excited and somewhat lower markets, on realizing by longs, covering early by foreign shorts on higher silver, and better weather. August wheat closed at \$1.06½, with receipts 144,384, exports 24,641, and options 14,180,000 bushels. The Northwest reported an escape from the threatened frost. August corn closed at 54½c., with receipts 132,161, exports 5,354, and options 816,000 bushels. August oats closed at 43½c., with receipts 171,469, exports 17,261, and options 150,000 bushels. Wheat flour was higher again with wheat, and miller's limits were advanced to \$6.15@6.25 for standard to fancy patent springs, while winters were held at \$5.75@6.00; but the former figure was all that could be obtained, even in small lots early, and 5.50 for straights. Receipts were 11,182 sacks and 29,475 barrels, and exports 2,830 sacks and 6,802 barrels. The minor lines were not materially changed. The visible supply in the United States and Canada was as follows:

	1890.	1889.	1888.
	Aug. 16.	Aug. 17.	Aug. 18.
Wheat.....	18,452,780	14,220,534	26,263,305
Corn.....	10,067,069	8,027,060	8,239,741
Oats.....	2,264,103	4,908,240	1,573,432
Rye.....	503,581	857,580	295,863
Barley.....	355,827	356,061	145,501

Tuesday brought active, higher and excited markets, on bad weather and crop reports and a further rise in silver. August wheat closed at \$1.09½, September at \$1.10¼, October at

\$1.10¼, November at \$1.11½, December at \$1.12¼, and January at \$1.13½. Receipts were 200,223, exports 117,077, and options 10,000,000 bushels. Minneapolis reports late in the day said "wheat froze last night in the milk," but as harvesting had been reported in that section several days ago, the report was not believed to be anything else than a fake. August corn closed at 55½c., with receipts 132,875, exports 203,937, and options 1,136,000 bushels. August oats closed at 44c., with receipts 242,799, exports 15,734, and options 200,000 bushels. Wheat flour was irregular and excited, and the tendency was decidedly upward. Receipts were 12,591 sacks and 37,273 barrels, and exports 29,397 sacks and 10,292 barrels. Quotations in New York were as follows: \$4@4.50 for No. 1 spring in sacks for standard export grades and \$4.50@4.75 for bakers' extras in sacks, \$4.60@5.00 in bbls: \$4.35@4.85 for rye mixtures; \$5@5.75 for straight springs, \$5.50@6 for patent do, fancy, \$6.25; \$5.50@5.85 for patent winters, fancy, \$5.90@6; \$5@5.25 for straight do, fancy, \$5.35@5.50; \$4.50@5.10 for clear do, \$5.20 for fancy; \$4.30@4.65 for No 1 do, \$3.75@4 for No. 2 do in sacks and barrels, \$3.35@3.70 for superfine do do, \$2.75@3 for fine do, \$5.10@5.25 for city mills for West Indies, \$6@6.40 for patent do. The minor lines were sympathetically firm. The wheat dealers were confidently talking of "125-cent wheat" in New York, and the whole situation in cereals and other crops seems to furnish a good basis for a permanent and considerable advance on this crop. The bears are on the under side, but they keep their chins going valiantly and tirelessly, talking down prices as the markets continue to advance.

The following shows the amount of wheat and flour, together with the amount of corn on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890.	1890.	1889.
	Aug. 19.	Aug. 12.	Aug. 20.
Wh. & flour, qrs.	2,358,000	2,240,000	1,865,000
Corn, qrs.....	696,000	823,000	559,000

The following shows the amount of wheat and corn on passage to the Continent for the past week, the previous week, and for the same week last year:

	1890.	1890.	1890.
	Aug. 19.	Aug. 12.	Aug. 20.
Wheat, qrs....	538,000	523,000	181,000
Corn, qrs.....	221,000	285,000	163,000

	Qrs.
Shipments India wheat to United Kingdom.....	60,000
do do do Continent.....	...

The imports into the United Kingdom for the past week and the previous week and for same week last year:

	1890.	1890.	1890.
	Aug. 19.	Aug. 12.	Aug. 20.
Wheat, qrs....	314,000	324,000	399,000
Corn, qrs.....	283,000	208,000	218,000
Flour bbls.....	174,000	256,000	101,000

Wednesday brought a slight break in the markets, on better weather and crop reports, at the opening, with later bulling to sell on, and the closing was generally lower on free realizing, excepting on flour. August wheat closed at \$1.08½, with receipts 86,669, exports 84,242, and options 7,368,000 bushels. A rumor was received that London was quarantining Indian wheat on account of a fear of cholera. August corn closed at 55½c., with receipts 68,514, exports 29,700, and options 560,000 bushels. August oats closed at 43c., with receipts 185,891, exports 17,200, and options 225,000 bushels. Rye was nominal at the late advance, in the absence of offerings. Quotations: 63@68c. for State No. 1, 65@67c. for Western No. 2 afloat, in full loads; 63@65c. for car lots State and Jersey on the track. Barley was nominal, as sellers dared not offer in view of the possibility of the passage of the higher tariff, and buyers would not pay the extreme prices demanded until there is a certainty of the passage of the bill now before Congress. Malt was nominally firm and unchanged. Quotations: 85c. for country Canada and 85@90c. for city do. Mill-feed was very firmly held at old or higher prices, with little offered and a good inquiry. Quota-

tions: 40, 60 and 80 lbs. at 90@92½c; 100 lbs. at \$1.00@1.05; rye, \$1.

Wheat flour was stronger, and millers' limits were advanced 10c on springs and winters. The break in wheat had no effect on flour, as both stocks and receipts in New York were too small to enable buyers to take advantage of the break in wheat. The sellers were independent and buyers were low in stocks. Receipts were 5,722 sacks and 24,679 barrels, and exports 6,141 sacks and 29,797 barrels.

Rye flour was higher at \$3.50@4.00. Corn products were quiet but strong at the following quotations: Brandywine meal \$3.25; Southern and Western \$3.00@3.20; coarse bag meal \$1.06@1.08; fine yellow \$1.12@1.15; fine white \$1.15@1.20 for city; Southern do \$1.10@1.75 for the whole range in bags; yellow granulated \$3.35@3.50; white do \$3.60@4.00, the latter fancy; \$3.70@4.00 for flour in barrels, the latter fancy.

Thursday brought no particular changes. August wheat closed at \$1.07¼c., with receipts 125,000, exports 49,000, spot sales 56,000, and options 5,800,000 bushels. August corn closed at 55½c., with receipts 50,000, exports 9,000, spot sales 76,000, and options 592,000 bushels. August oats closed at 43c., with receipts 95,000, spot sales 124,000, and options 90,000 bushels. The minor lines were quiet. Wheat flour was firm and active, with receipts 15,000 and sales 24,000 packages. Quotations were: Low extras \$3.35@4.00; city mills \$5.15@5.35; city mill patents \$5.75@6.50; winter wheat low grades \$3.35@4.00; fair to fancy \$4.10@5.50; patents \$4.80@6.00; Minnesota clear \$4.60@5.25; straight \$4.75@5.70; Minnesota straight patents \$5.50@6.35; rye mixtures \$4.60@5.25; superfine \$2.75@3.75. The Minneapolis output last week was 157,000 barrels, and for 11 months of the crop year 6,184,265 barrels, against 5,237,885 barrels a year ago. The Minneapolis direct exports of flour are already 539,000 barrels ahead of last year.

BUFFALO MARKETS.

Buffalo, N. Y., August 21, 1890 WHEAT—The only sales reported were 600 bus No. 1 hard at \$1.21, 600 bus. No. 1 Northern at \$1.18, and 1,200 No. 1 white at \$1.04½. At the close No. 1 hard was held at \$1.20@1.22; No. 1 Northern at \$1.18@1.19½; No. 3 do at \$1.16; No. 2 red at \$1.06@1.06½, and No. 1 white at \$1.04. CORN—Sales were light, corn being dull early, and later on hardening up so that the close was at 55c. for No. 2 yellow; 54½c. for No. 3 do; 53½c. for No. 2 corn, and 53c. for No. 3 do. OATS—Prices were very steady all day. At the close old No. 2 white were quoted at 45c, new do at 42c., and new No. 2 mixed at 40½c. Sales were made at these figures RYE—The market is entirely nominal at 68@70c for No. 2. OATMEAL—Akron, \$6.45; Western, \$6.20 per bbl; rolled oats, in cases, 72 lbs, \$3.10. CORNMEAL—Coarse, \$1.00@1.05; fine, \$1.05@1.10; granulated \$1.60 per cwt. MILL-FEED—City-ground coarse winter, \$17.00@17.50 per ton; fine do. \$17.50@18.00; finished winter middlings, \$18.00@20.00; coarse spring do, \$18.

FLOUR MARKET.

	Spring Wheat.	Winter Wheat.
Patents.....	\$6.00@....	Patents... .. \$5.75@....
Straight.....	5.25@....	Straight... .. 5.25@....
Bakers.....	4.50@....	Clear 4.50@....
Red Dog.....	2.50@3.00	Low grades .. 3.25@....
Rye flour....	3.50@....	Graham..... 4.75@....

PRACTICAL BOOKS FOR Practical Men

By ROBERT GRIMSHAW, M. E.

Steam Engine Catechism.....complete.....	\$2.00
Boiler Catechism.....	2.00
Pump Catechism.....	1.00

These Catechisms give plain, correct, practical answers to practical questions, such as would be asked candidates for positions, licenses, or admission to engineering societies. No high science; no mathematical gymnastics. Popular style. Up to date.

AVOID IMITATIONS.

Engineer's Hourly Log Book..... \$.50

The most convenient form for recording coal consumption, horse power, etc., with a view to the greatest economy of fuel and oil.

Preparing For Indication..... \$1.00

Invaluable to every running engineer.

Saw Filing..... \$.75

Very practical and up to date.

Practical Training..... \$.50

A very common-sense book for everybody.

Square Root Made Easy..... \$.50

Helps you to learn or remember how to take the square root of anything.

Hints On House Building..... \$.50

Useful to every house owner or renter.

Sent post-paid to any address on receipt of price by

McFAUL & NOLAN,

Drawer 203, Buffalo, N. Y.



RELIANCE OIL & GREASE CO., CLEVELAND, O.

—MANUFACTURERS OF—

Finest Lubricants for Milling Plants. A Challenge to the World.

WRITE US.

"VALVE OLEINE"—875 Degrees Fire Test, Cylinder Oil.

"RUSSIAN"—Engine and Machine Oil.

"CHIEF"—Roller Mill Lubricant.

"ANCHOR"—Roller Mill Grease.

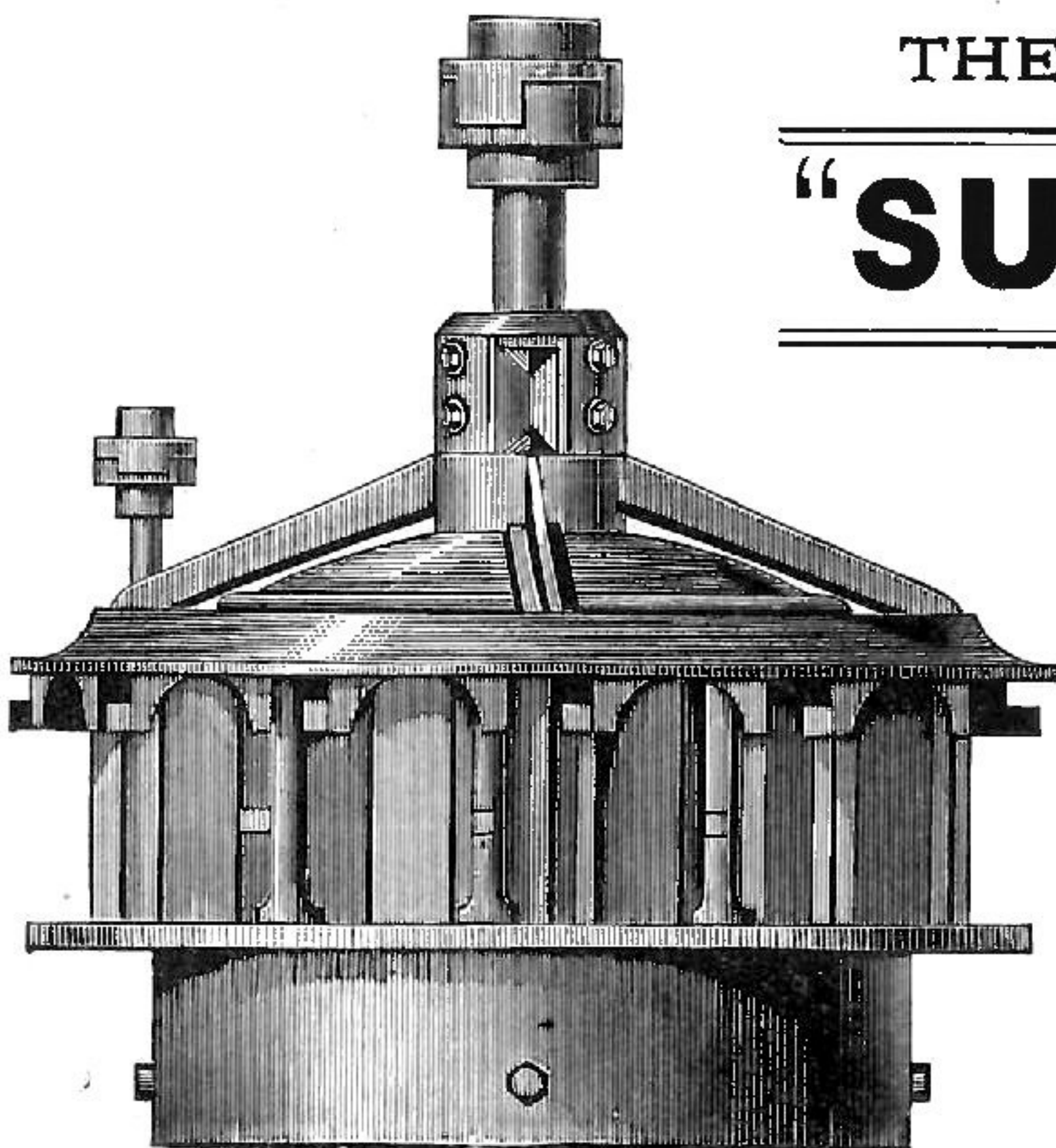
"NIAGARA"—Belt Grease.

"CHELSEA"—Scale Solvent, Best on Market.

Agents Wanted.

FREE—SAMPLES, CATALOGUE, AND ALL INFORMATION.

SPECIAL
HIGH GRADE
PRODUCTS



THE IMPROVED "SUCCESS"

PERCENTAGE:

Full Gate, - - 86.29

$\frac{7}{8}$ Gate, - - - 86.07

$\frac{3}{4}$ Gate, - - - 81.90

—(O)—

This Wheel is Both Durable and Cheap. Send for Pamphlet to

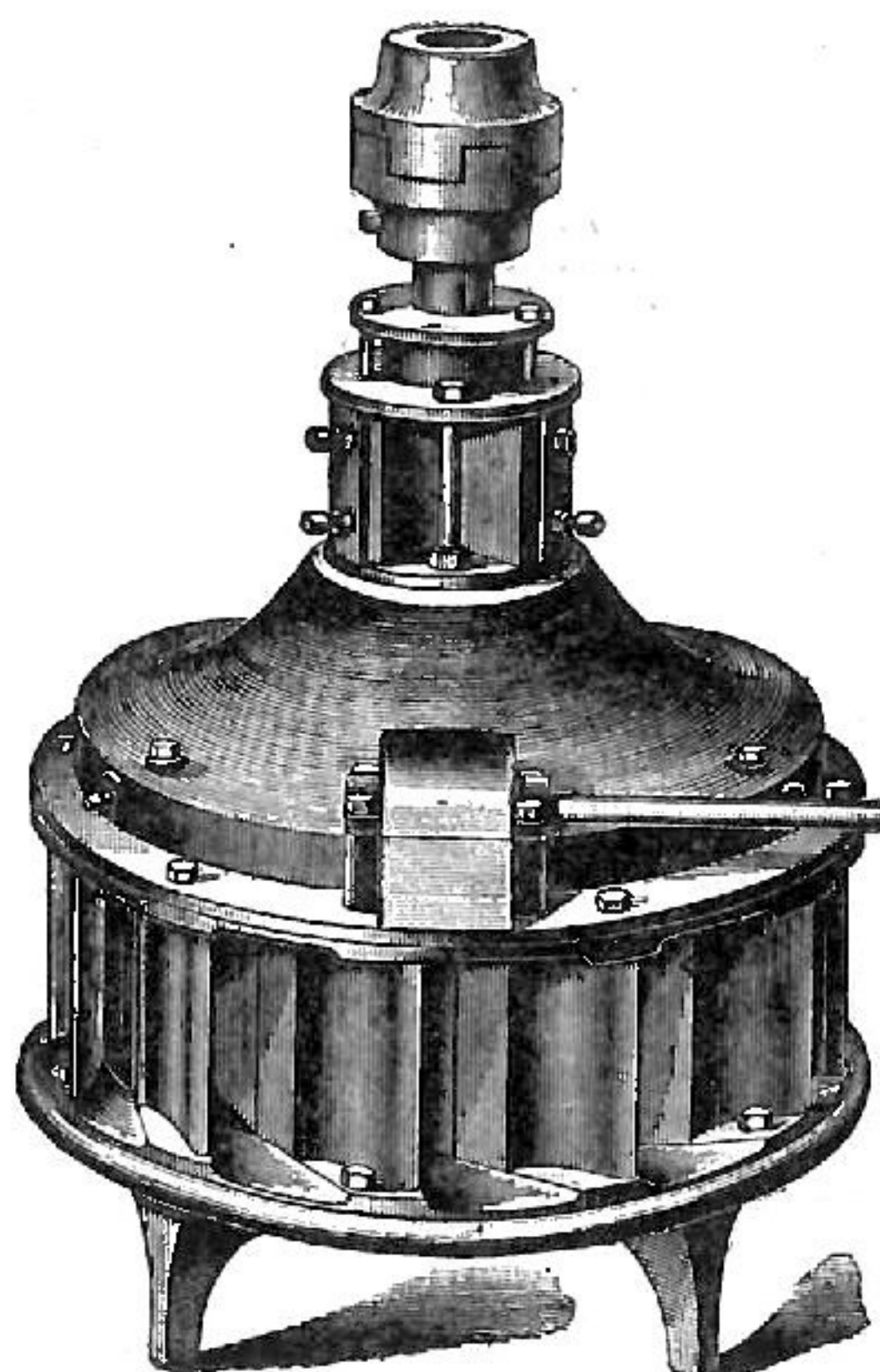
S. MORGAN SMITH
YORK, - PA.

C. O. Bartlett's Net Prices. DUFOUR BOLTING CLOTH.

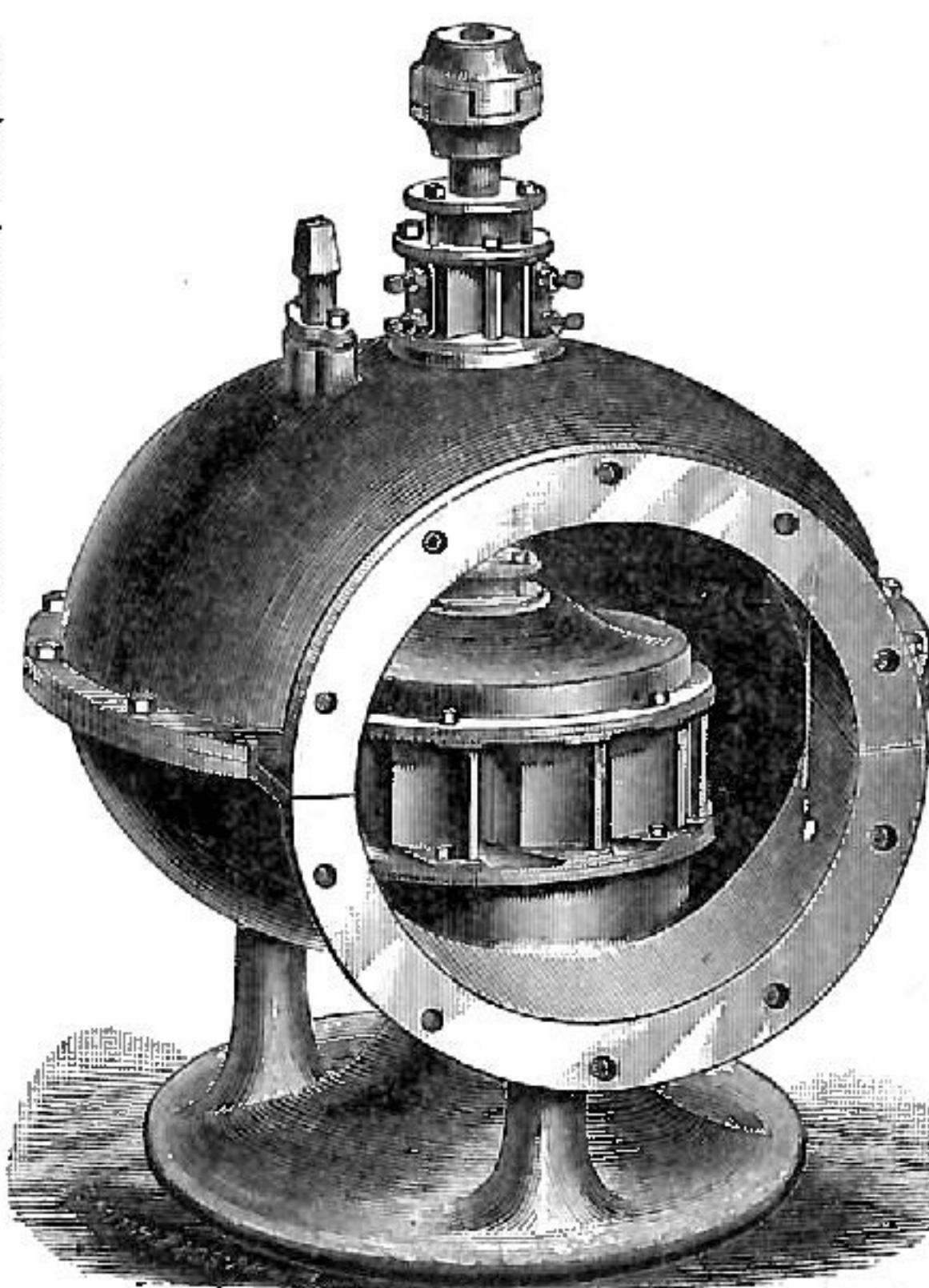
0000..... .86	2.....\$1.10	7.....\$1.46	13.....\$1.86	Link Belting.
000..... .91	3.....1.20	8.....1.50	14.....2.16	Sprocket Wheels.
00..... .95	4.....1.27	9.....1.60	15.....2.34	Shafting, Pulleys, Etc.
0..... .98	5.....1.33	10.....1.65	16.....2.58	General Mill Machinery.
1.....\$1.04	6.....1.46	11.....1.74	17.....2.91	Write for Prices.

C. O. BARTLETT, CLEVELAND, OHIO.

**WHEN WRITING TO ADVERTISERS
PLEASE MENTION
THE MILLING WORLD.**



BURNHAM'S NEW IMPROVED
Standard Turbine Wheel
Catalogue Free.
BURNHAM BROS., York, Pa.



"Cooper on Belting"

A Treatise on the Use of Belting for the Transmission of Power. With illustrations of approved and actual methods of arranging Main Driving and Quarter Twist Belts, and of Belt Fastenings. Examples and Rules in great number for exhibiting and calculating the size and driving power of belts. Plain, Particular and Practical Directions for the Treatment, Care and Management of Belts. Descriptions of many varieties of Beltings, together with chapters on the Transmission of Power by Ropes; by Iron and Wood Frictional Gearing; on the Strength of Belting Leather; and on the Experimental Investigations of Morin, Briggs, and others, for determining the Friction of Belts under different tensions, which are presented clearly and fully, with the text and tables unabridged. By JOHN H. COOPER, M. E. Second Edition. One vol., demi octavo. Cloth, \$3.50. Sent post-paid on receipt of price. Address,

McFAUL & NOLAN, BUFFALO, N. Y.

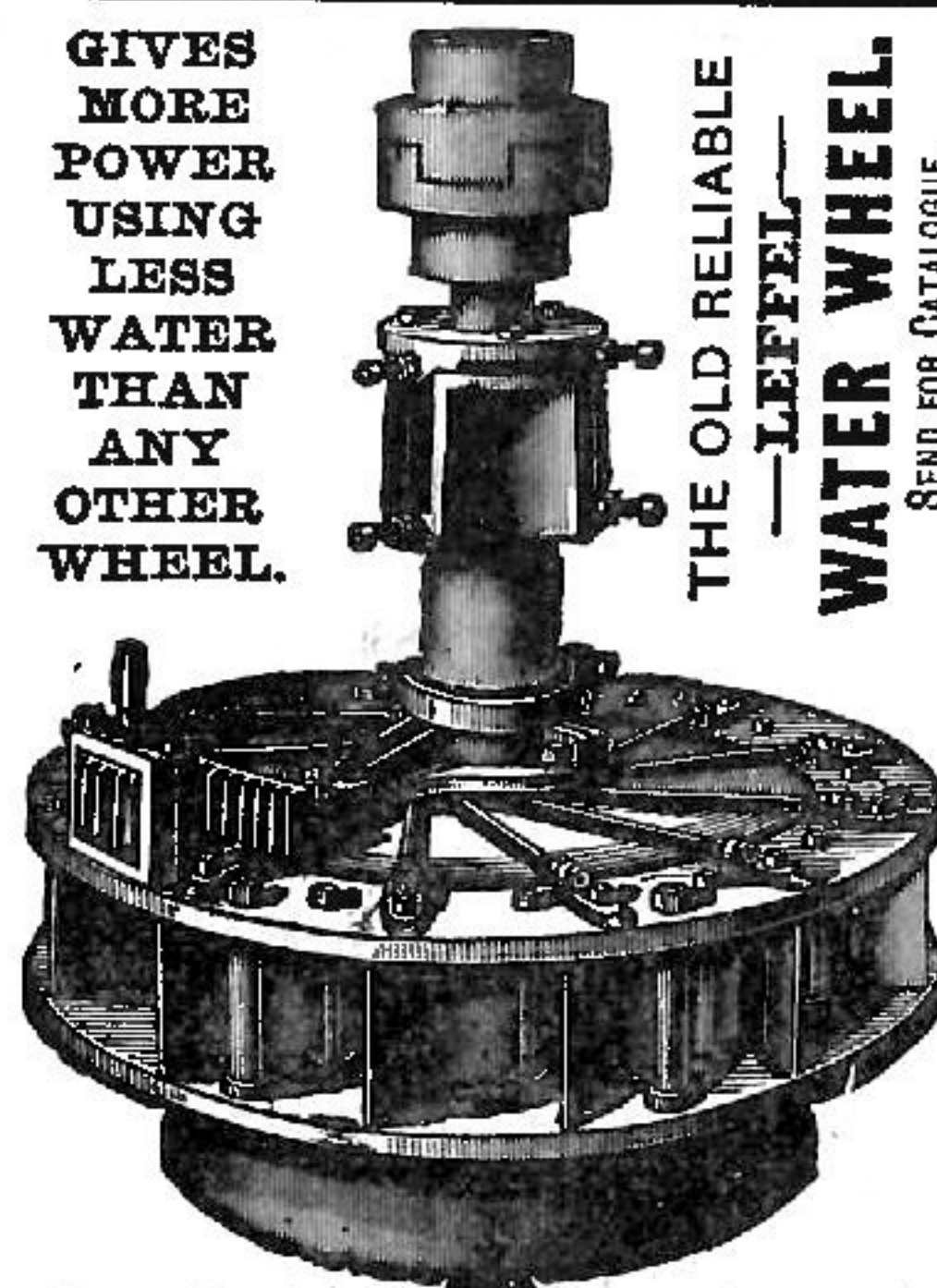


THIS WHEEL GIVES HIGH RESULTS, AND IS ACKNOWLEDGED THE BEST, MOST PRACTICAL AND EFFICIENT TURBINE MADE. FOR SIMPLICITY, DURABILITY, AND TIGHTNESS OF GATE IT HAS NO EQUAL.

State requirements and send for Catalogue to

**T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.**

GIVES
MORE
POWER
USING
LESS
WATER
THAN
ANY
OTHER
WHEEL.



THE OLD RELIABLE

—LEFFEL—

WATER WHEEL

SEND FOR CATALOGUE

**JAMES LEFFEL & CO.,
SPRINGFIELD, O., OR 110 LIBERTY ST., N.Y.**



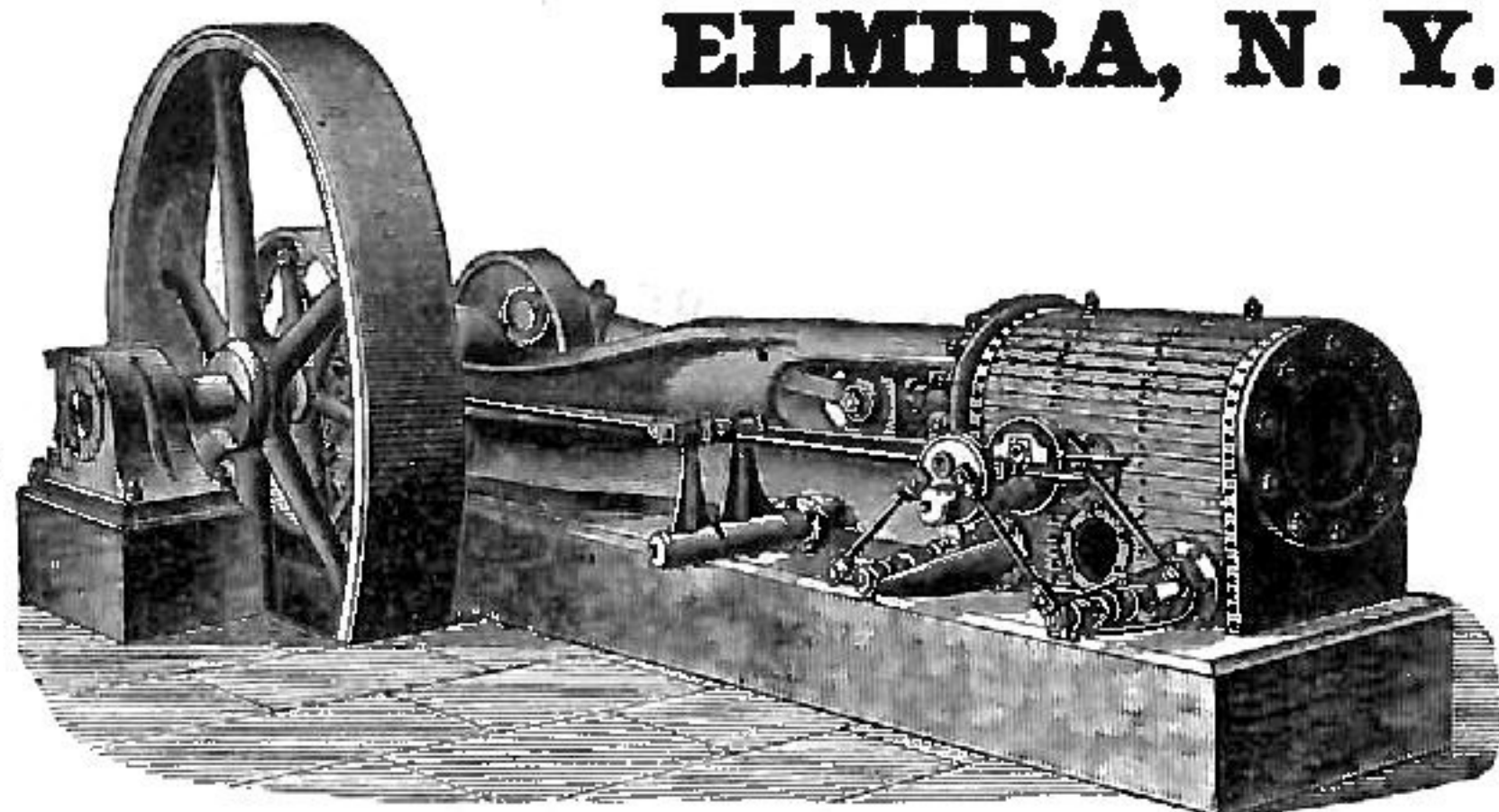
PAYNE HIGH SPEED CORLISS ENGINE

SHAFT GOVERNOR COMBINED WITH CORLISS WRIST-PLATE.

ECONOMY OF FUEL.

REGULATION EQUAL TO ANYTHING IN USE.

B. W. Payne & Sons,
ELMIRA, N. Y.



10 S. Canal Street.

CHICAGO, ILL.

45 Dey Street

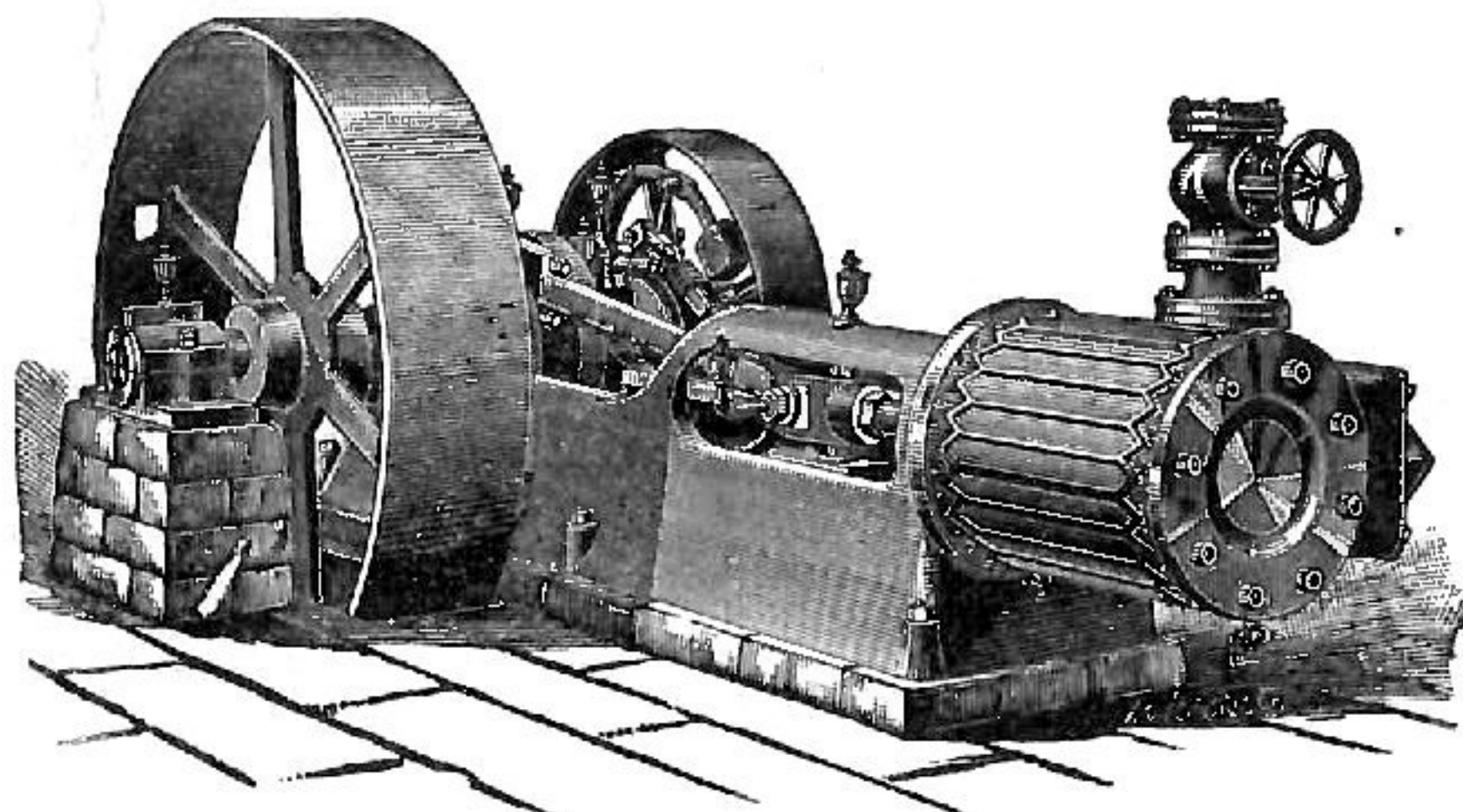
NEW YORK.

Hill, Clark & Co.

BOSTON, MASS.

AUTOMATIC ENGINES FROM 2 TO 200 HORSE POWER.

Economic Power Plants



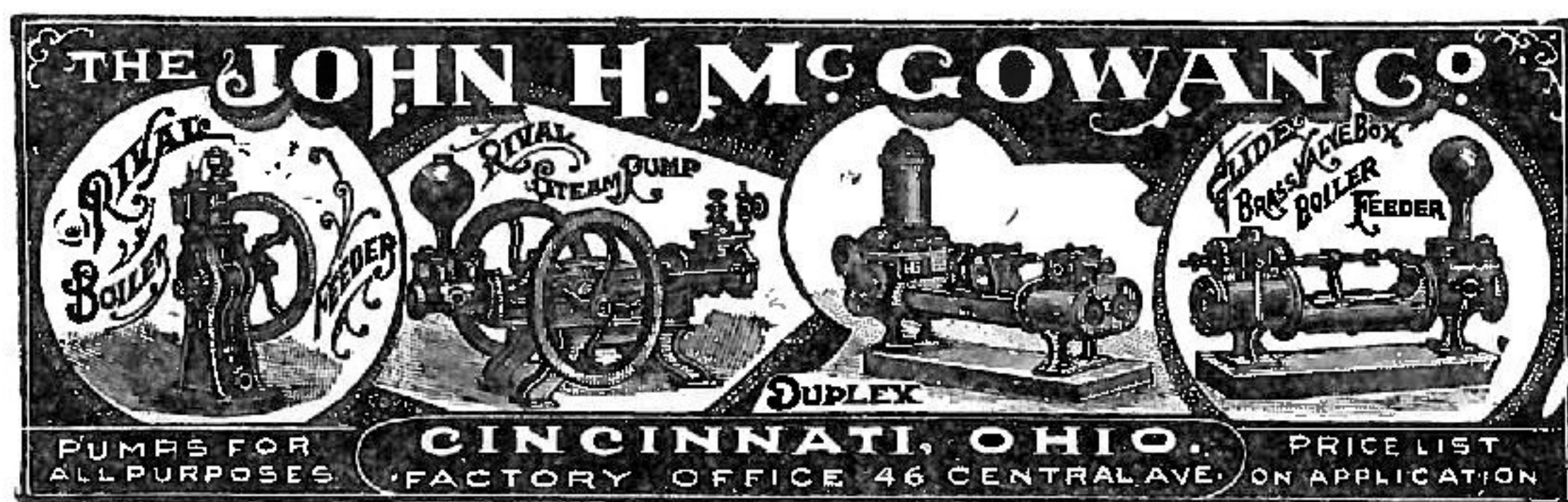
Especially Adapted to Electric Lighting and

WOOD-WORKING ESTABLISHMENTS

MANUFACTURED BY

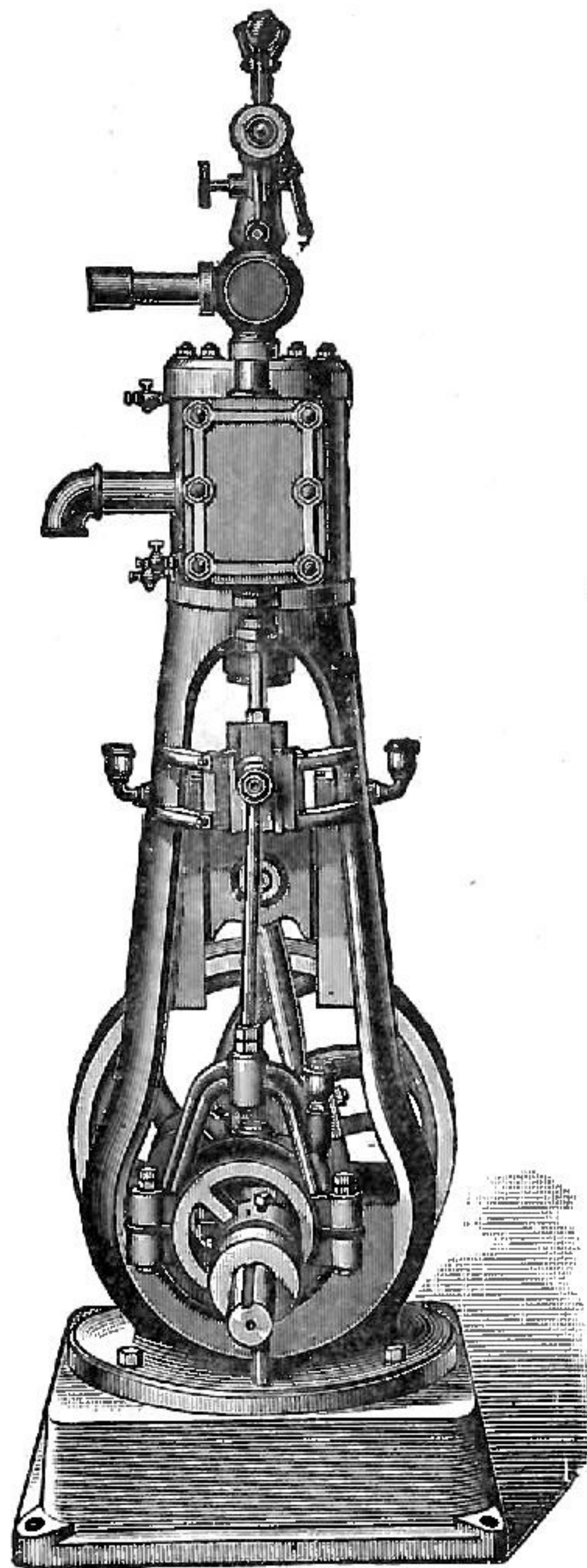
VALLEY IRON WORKS, WILLIAMSPORT, PENN.

Please Send for Our New Catalogue and Mention "The Milling World."



BRANCH HOUSE, 1425 EAST MAIN STREET, RICHMOND, VA.

AUTOMATIC VERTICAL ENGINES



Especially adapted for Small Electric Light Plants.
Perfect Regulation. Reversible Link Motion for Marine Use. Five to Fifteen Horse Power. Also manufacturers of

Lathes and Special Tools

Metal Patterns, Models and Machinery Built to Order

Send for Prices and Specifications.

Lloyd & Sterrett

COR. 16TH AND STATE STS.,

ERIE, - - PENN.



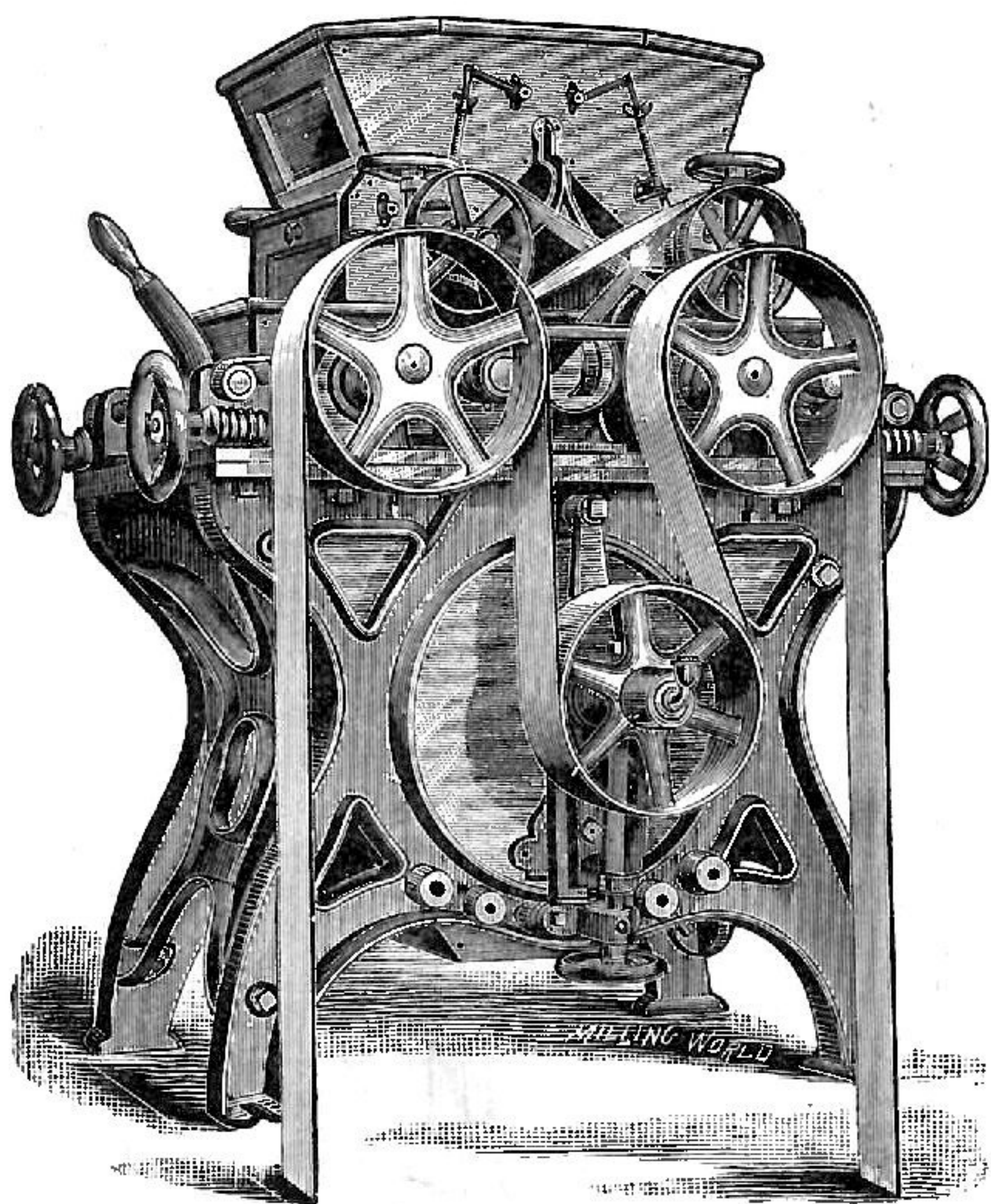
**MOORE'S
PATENT**

ARREL HEATER

For all kinds of coo-
rage. Thousands
in use in all parts of the
U. S. Send for Circular.

JOLIET STOVE WORKS JOLIET ILL.

JOHN HUTCHISON MFG. CO., Mill Builders and Mill Furnishers.



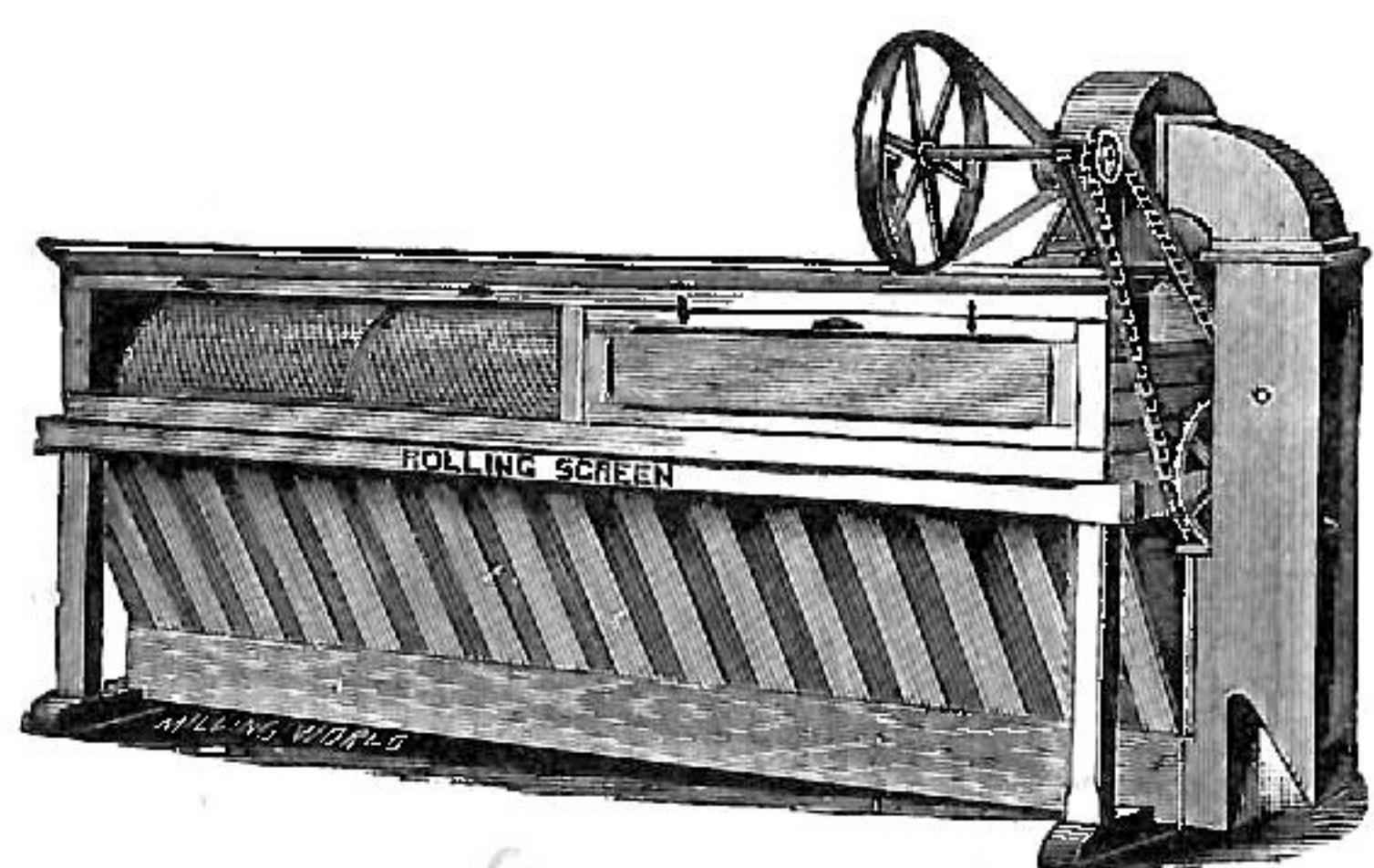
"The Rickerson." The original six inch 4 Roller Mill. We now own the patents on this mill and after greatly improving the mill manufacture them in four sizes:

6x12 inch.

6x18 inch.

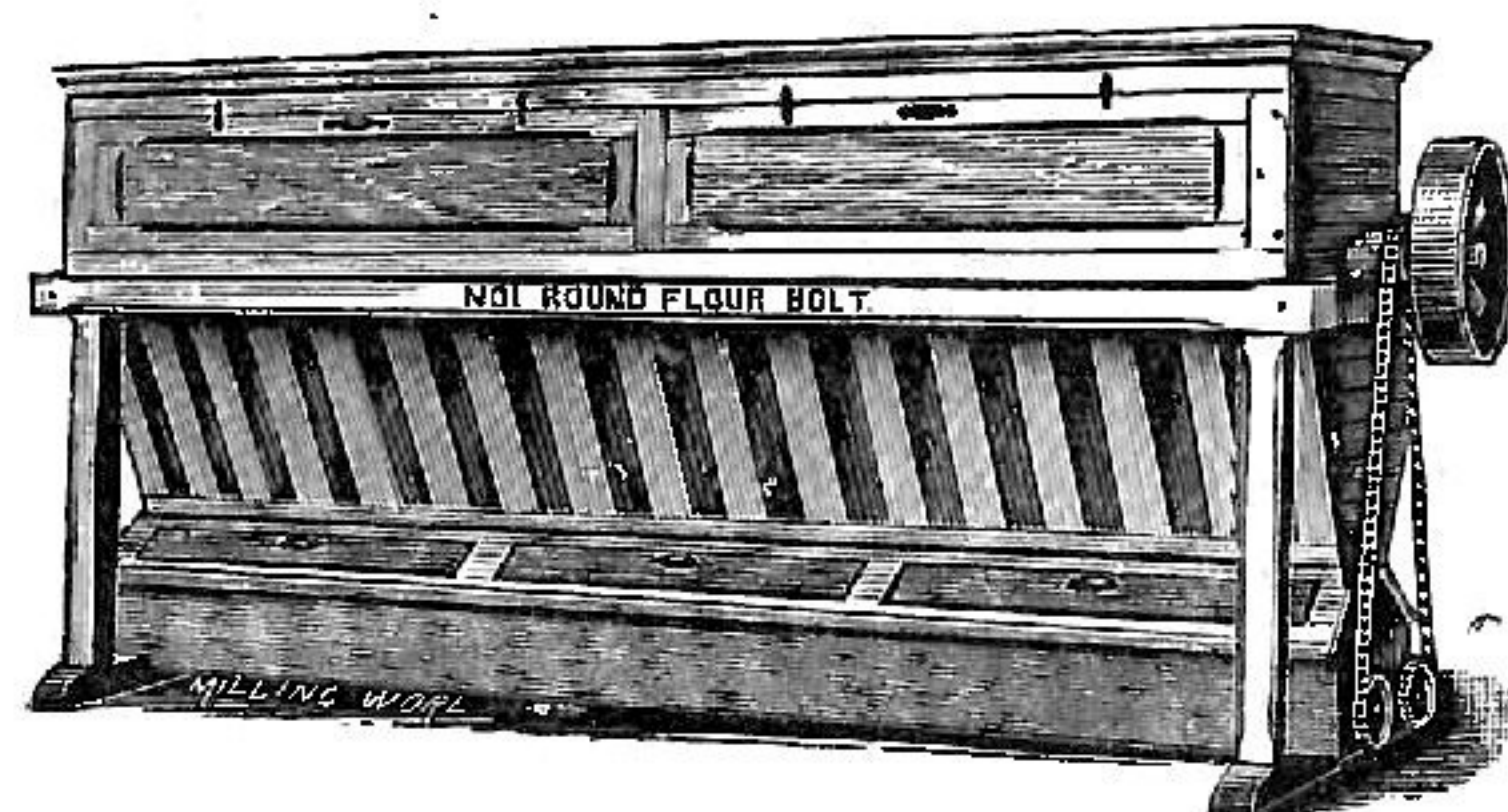
6x15 "

6x20 "

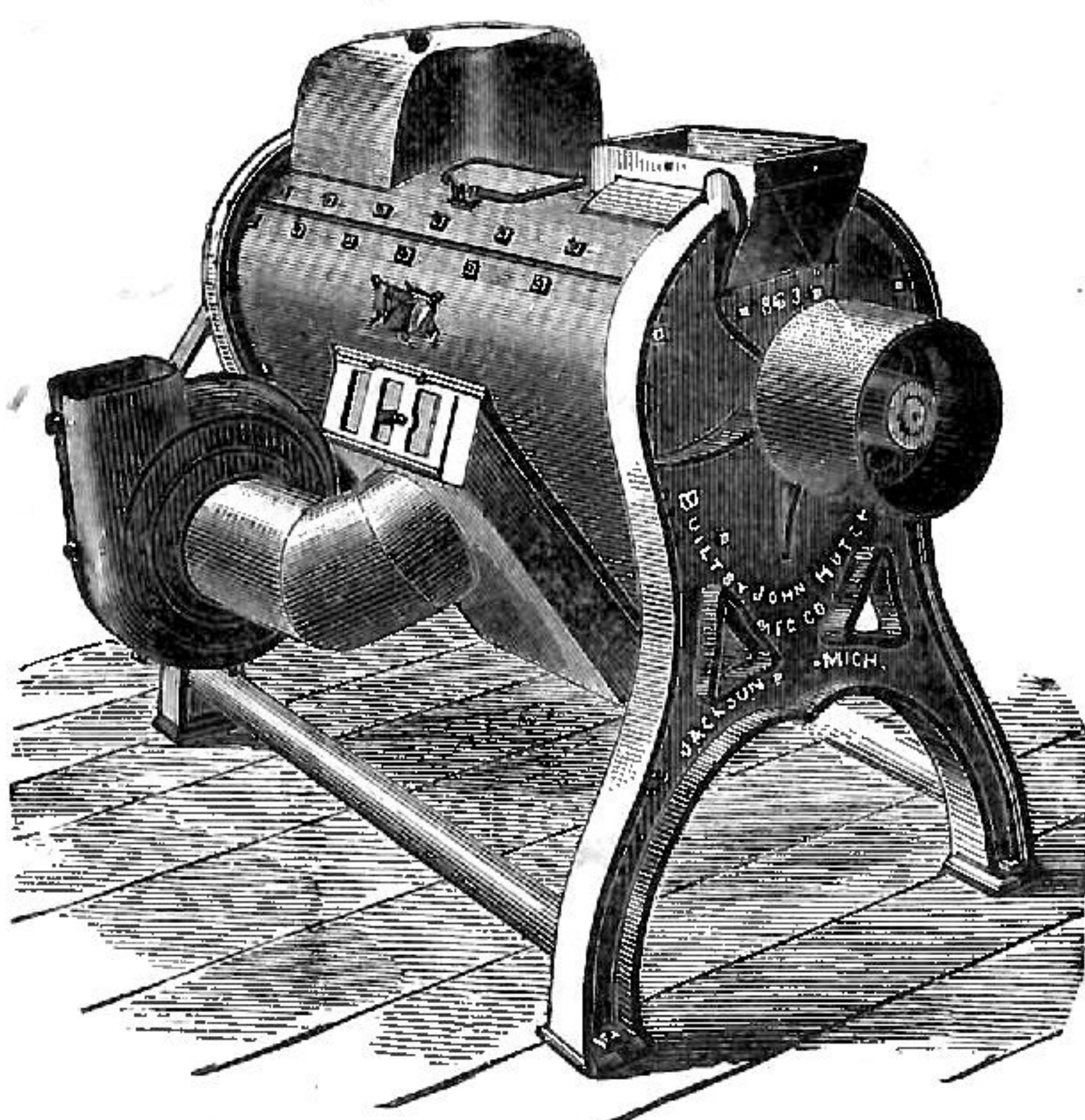


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.

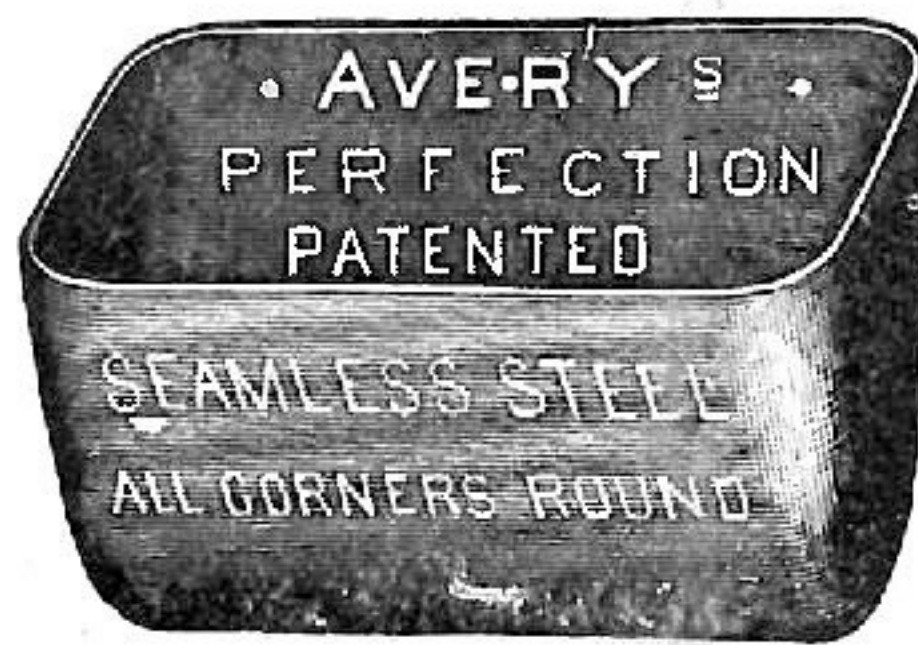


Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

—:ADDRESS ALL CORRESPONDENCE TO:—

John Hutchison Mfg. Co.

JACKSON. . . MICHIGAN.



ELEVATOR BUCKET.

✦ CORRUGATIONS ✦

What we know of corrugations can be found out by writing to US, or H. W. Caldwell, Chicago, Ill.

Stamping and Pressing of Sheet Metals for all Classes of Work. Also Tinning, Galvanizing and Japanning.

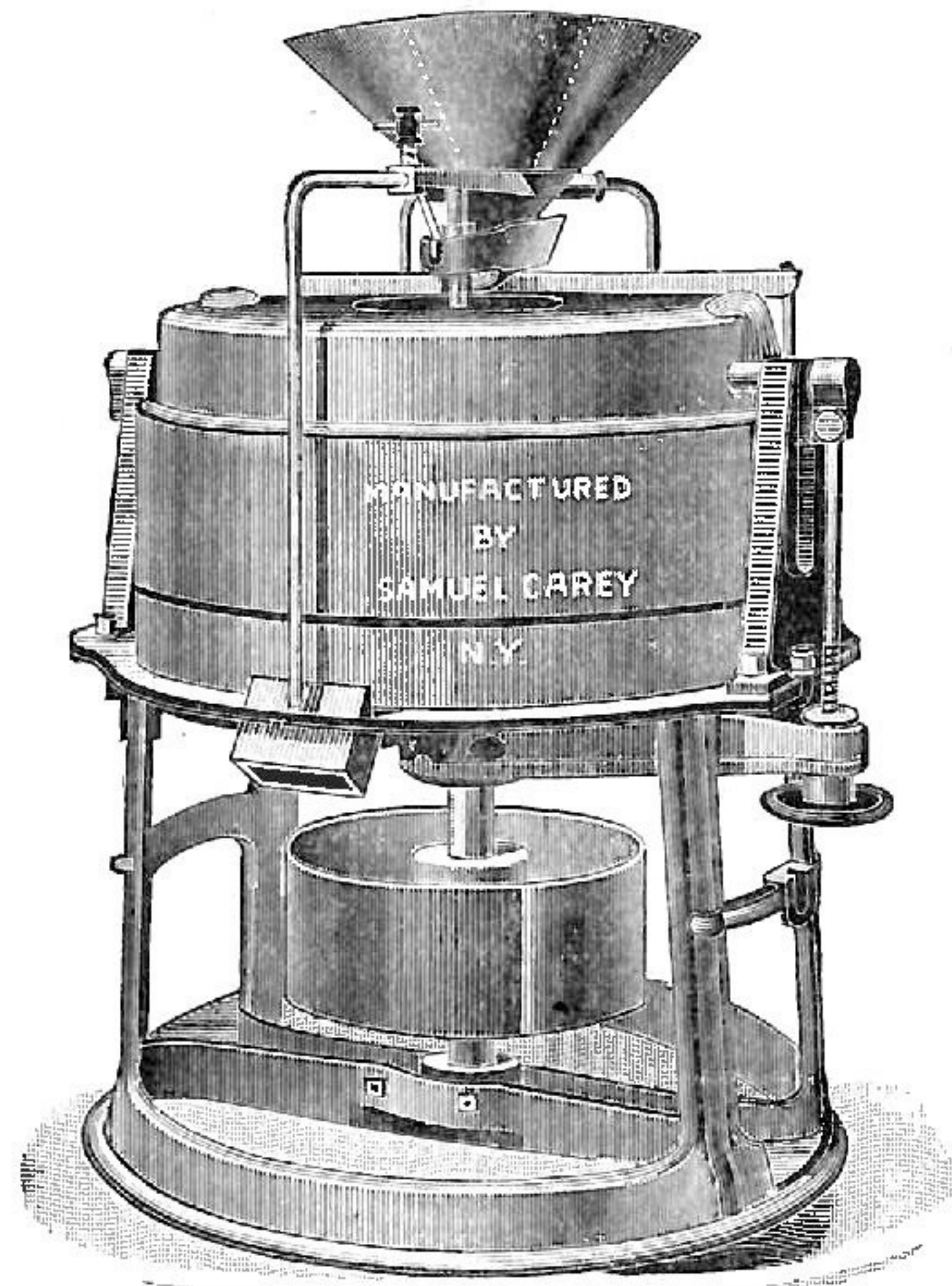
THE AVERY STAMPING CO.,

Cleveland, Ohio, U. S. A.

New York Office, 51 Cliff Street, HALL & NEAR, Agents.



CALDWELL'S PATENT.



SELF-TRAMMING

PORTABLE MILL

BEST GRINDING MILL MADE.

BOLTING CLOTH

AND

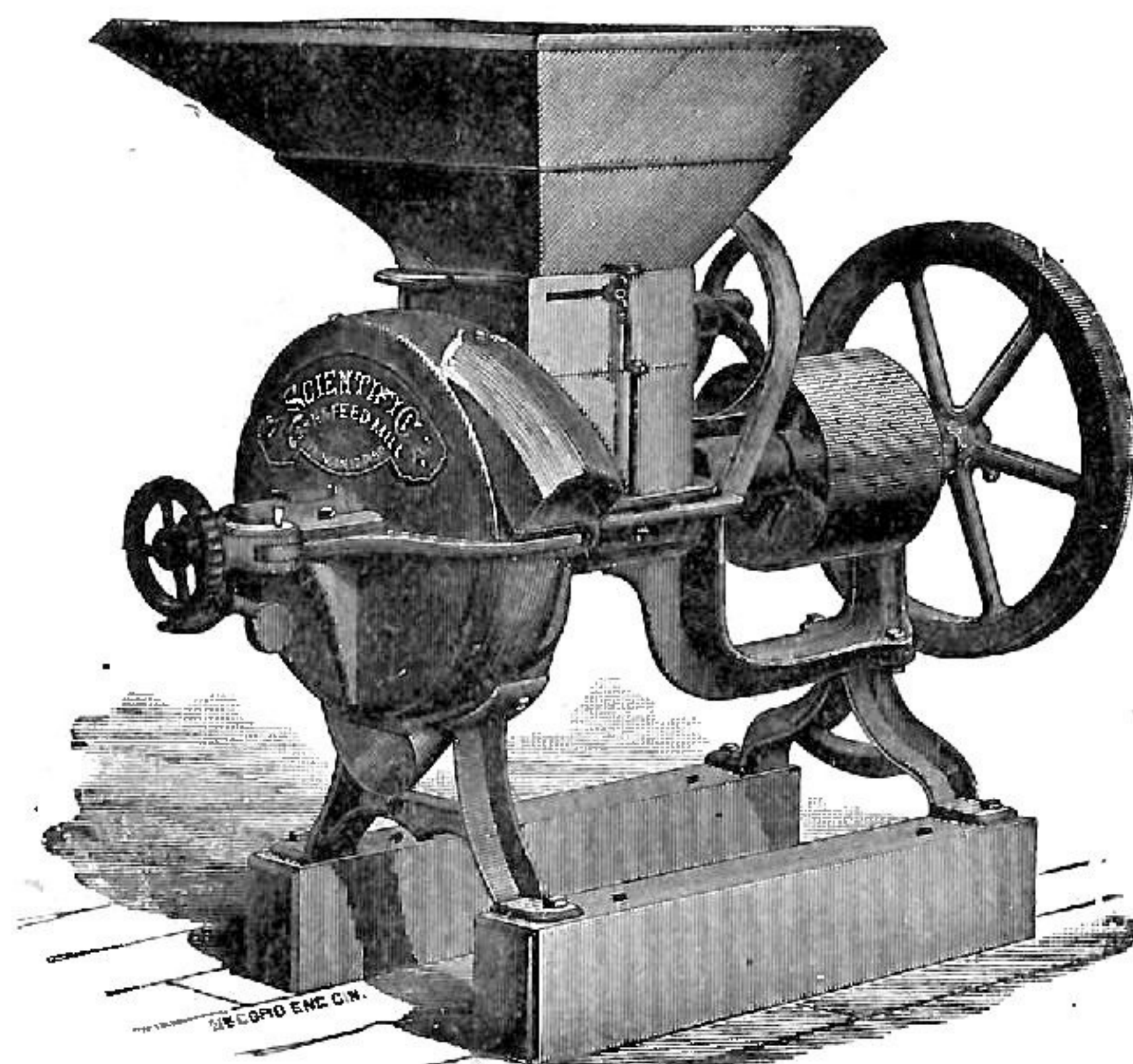
BURR AND ESOPUS MILLSTONES

WRITE FOR DISCOUNTS.

SAMUEL CAREY,

17 Broadway,

NEW YORK.



—THE SCIENTIFIC— GRINDING MILL.

POSITIVELY THE BEST MILL ON EARTH.

GRINDS PERFECTLY, EAR CORN, SHELLLED CORN,
AND ALL GRAINS.

GRINDING PLATES A SPECIAL METAL

*Hard as Steel, Guaranteed to Grind from Five to Eight
Thousand Bushels before wearing out.*

SEND FOR ILLUSTRATED CATALOGUE, PRICES, ETC.

THE FOOS MFG. CO.

SPRINGFIELD OHIO.

THE SALEM BUCKET STILL ON TOP!



—AND IS LIKELY TO—

HOLD ITS PLACE

As Leader of Buckets because it proves to be

THE BEST

And the cheapest in the long run after all. Send for New Catalogue and Revised Price List.

W. J. CLARK & CO., SALEM, OHIO.

THORNBURGH & GLESSNER, CHICAGO, ILL.